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The Manufacturing Confectioner

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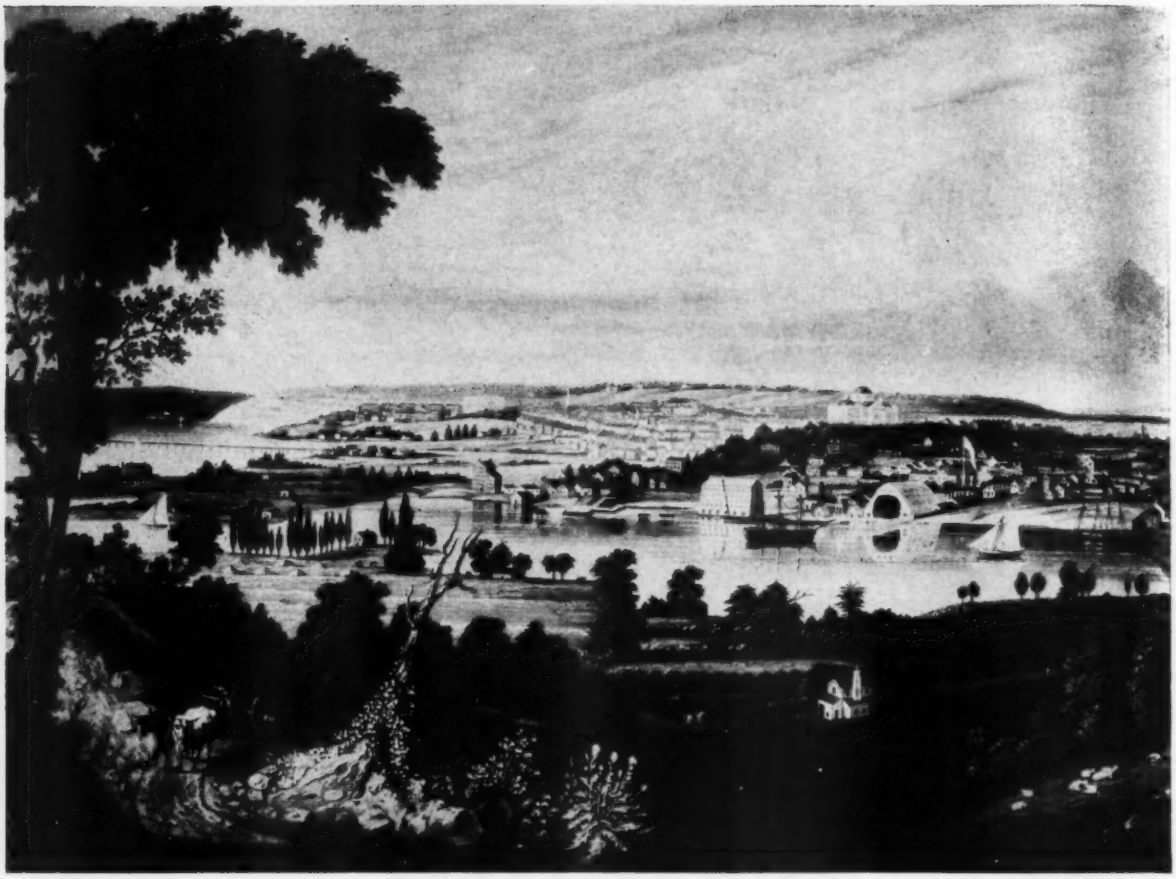
PIONEER SPECIALIZED PUBLICATION FOR CONFECTIONERY MANUFACTURERS

MARCH
1954

Carbohydrates in Confections
Showmanship Establishes Retailer
Techniques for Using Road Signs



Completed in 1800 Washington, D. C. was 33 years old when this drawing was made.

WASHINGTON 1833

The first carefully planned capital in the world, Washington, D. C. history began in 1790 when Congress directed selection of a new capital site ten miles square along the Potomac. Major Pierre L'Enfant, a French engineer who had fought in the Revolution, planned the city and in 1800 . . . two years after the establishment of D&O . . . the government moved in. At the age of 33 Washington had already survived the fire set by a British force during the War of 1812, and was well on the way to the international eminence she has attained today. It was, in fact, from the white paint applied to cover this fire damage that the President's home came to be called the White House . . . world famous symbol of both the nation and its capital, Washington, D. C.

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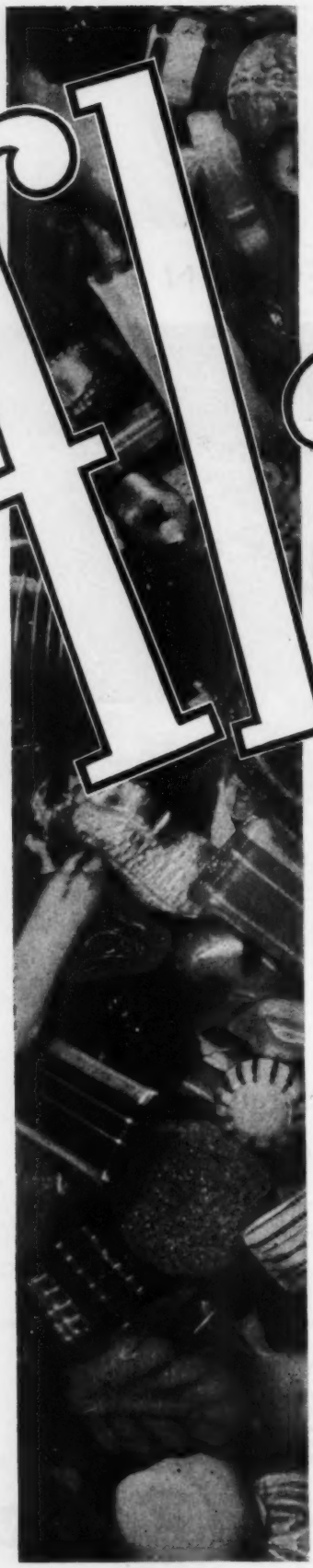
you can depend on DOW PLASTICS DOW



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FOLKS buy candy for just one thing . . . for the *eating pleasure* it gives them. And eating pleasure derives mostly from *FLAVOR*. Ask any top-flight candy manufacturer his opinion of flavor's importance and he'll tell you that no candy success story can be written without it. So, if you're on the way up in this field, build on the solid foundation of *quality flavors*. Use them in *every* confection you make and you'll find an eager market awaiting your output. And if you need help in their selection or use, come to FRITZSCHE . . . *A FIRST NAME IN FLAVORS SINCE 1871.*

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COVER: This sign introduces customers to the Putnam Pantry Candy Shop, near Danvers, Massachusetts. For a full story on this operation, see page 24.

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CANDY PRODUCTION:

Methods and Formulas

by Walter Richmond

Mr. Richmond describes fully the three basic operations for good candy manufacture: (1) Ingredients and Cooking Actions, (2) Mixing, Casting, Coating, Etc., (3) Trouble Shooting. Mr. Richmond tells *both* the reasons and the methods of operation. In addition, he provides carefully selected formulas for both the wholesale and the retail trade.

Whether you have a large plant or a small one, CANDY PRODUCTION: METHODS AND FORMULAS will prove a valuable asset to your firm. Mr. Richmond's book has 30 helpful chapters, as shown in the accompanying contents table. Its 640 pages contain 500 candy formulas and detailed production information on candies. For quick, convenient reference, a numbered list of the book's 500 formulas —grouped also under 32 main candy classifications—is provided. A comprehensive index and large diagrams showing both how to decorate Easter eggs and how to insert fruit and nuts in the centers are still additional features. Designed specifically as a production man's text, Mr. Richmond's helpful book also provides generous space alongside the formulas for notes during actual production in the candy plant.

Directory Division
The Manufacturing Confectioner
Publishing Company
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Enclosed find my check.....to cover the cost of.....copies of the **Candy Production Methods and Formulas** at $10.00 ea.

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Reading and Writing About Candy

THE TALK this past month has centered again on the chocolate situation, mainly on the rapid switch on the part of bar manufacturers to compound coatings.

The big news on this front was centered on two very successful regional meetings of the NCA, one in New York and the other in Chicago. These meetings gave an excellent description of the uses of compound coatings, and their behavior in standard candy coating machinery.

Along this same line, the effect of the recent Dept. of Agriculture offer to sell dairy butter as a substitute for cocoa butter seems to have been pretty much of an empty gesture. So far, there have been five carloads sold, at approximately 25 cents per pound. Those purchasing were Wilbur-Suchard, E. J. Brach, Walter Baker, Merckens and Blommer, at one carload each. This total of 150,000 pounds will hardly put any dent in the total purchases of this country of cocoa butter, compared to that provided by the use of vegetable fats other than cocoa butter, as used in compound coatings.

While both of the regional meetings of the NCA were off-the-record discussions, the general tone brought out by the speakers and the questions from the audience can and should be commented on. The purpose of these meetings was to familiarize manufacturers with the cocoa situation regarding the possible supply and price picture and to give some information on compound coatings, regarding their quality and techniques of use. The meetings were eminently successful on both these points, and any candy manufacturers who missed them lost a golden opportunity to learn a lot in a short time.

The primary purpose of these meetings was to ease the wholesale conversion to compound coatings now in evidence on the part of candy manufacturers. The dangers in such quick acceptance of a new ingredient is that mistakes will be made in the buying and processing, causing a substandard product to be offered to the consumer. It is distinctly in the interest of the industry to make this change over as smooth as possible, and with a minimum amount of consumer resistance and publicity.

Both Mr. Alikonis, of the Paul F. Beich Company, and Mr. Schnering, of Curtiss Candy Company, who spoke from a great deal of experience on the problems of handling compound coatings, emphasized the care that must be taken in the using of these products. Any manufacturer who thinks that all problems of tempering, blooming and storing evaporate when using compound coatings is sadly mistaken. The new vegetable butters that are going into modern compound coatings are vastly improved over earlier products. However, that improvement of the butters has necessitated greater care in handling. Tempering is absolutely essential to provide a coating with good gloss and that will resist blooming.

The first attempt that we have heard of to sell compound coatings in solid form, directly competitive to solid chocolate, has taken place in Philadelphia, under the direction of Blumenthal Brothers Chocolate Company. The product is called "Choco-like," and was sold in the form of stars, bulk. The promotion was staged with quite a bit of fanfare, with consumer sampling and large displays, and of course, quite a bit was sold, at 39 cents per pound. However, the fact that the H. L. Green stores would risk their customer good will by staging such a large promotion on this product indicates that they believe the product will receive good consumer acceptance.

Perhaps the Association of Cocoa and Chocolate Manufacturers were unduly conservative in their notice to the cocoa producing countries. In that notice, the association indicated that the continuation of present prices would cause a drop of about one-fourth in United States bean imports. If the taste for compound chocolate takes hold in this country, chocolate may be imported primarily for its flavor.

THE "Good Will Candy Tour" will again leave this country this spring for an extended visit to candy and chocolate plants in Europe. Howard Vair of Detroit, who developed this idea and led the first tour last year, is organizing the group. Any person interested in taking this tour can contact Mr. Vair at Vair-E-Best Candies, 16057 Hamilton, Detroit 3, Michigan.

Confectioners' Briefs

Withers Candy & Gift Company has absorbed the **Ranch Girl Candy Company,** and has moved operations to Fort Worth, Texas. They are now operating under the name Withers Candy and Gift Company, manufacturers of Ranch Girl Candies, Withers' Blue Bonnet Candies and Withers' Colonial Candies, at 2020 Montgomery St., Fort Worth, Texas.

John C. Walsh, of **American Licorice Company,** has been elected president of the Northwest Associated Manufacturers.

The Candy Buyers Directory, the annual publication listing confectionery manufacturers and importers, has just published its 1954 edition. Candy manufacturers are listed alphabetically, and classified by product. This edition also includes the second annual Directory of Candy Brokers. Published by The Manufacturing Confectioner Publishing Company.

Robert L. Feind, Controller, **Robert A. Johnston Company,** Milwaukee, has been elected to membership in the Controllers Institute of America.

The Hoben Candy Corporation has announced that it has fair traded its Double Chocolate Malted bar, a 10¢ seller, in Maryland, Indiana, Illinois and Massachusetts, and is proceeding as rapidly as possible to complete contracts in other states throughout the country. This bar, which has long been popular with the vending trade, has a wrapper which is distinctive from the 5¢ size. Also, the 5¢ size is sold exclusively to the vending trade. This removes one of the chief objections usually raised on 10¢ bars, since the 5¢ bar will not be directly competitive with the larger bar. All of the companies five cent bars have now been removed from the jobbing field.

W. E. Johnson

Heidelberger Confectionery Company has appointed **W. E. Johnson** as sales manager, to succeed **Harry P. M. Tolson** who is retiring after 33 years service with the firm. With 20 years experience in the confectionery field, Mr. Johnson has resigned from the New England Confectionery Company in order to assume his new duties with Heidelberger.

Just Born, Inc., of Bethlehem, Pa., has purchased **Marlon Confections Corporation,** and is moving the equipment to its factory in Bethlehem. The principal products of Marlon are candy panned chocolate pieces, and chocolate coated cordial cherries.

P. B. Grosscup, Jr., has been elected president of **Reymer Brothers, Inc.,** Pittsburgh. He succeeds George J. Cochran, who resigned because of ill health. Mr. Grosscup was general sales manager of Danforth Corp, electrical appliance distributor.

Betsy Ross Candy Shops of Indianapolis are now being supplied by the **Dutch Mill Candy Company** of Chicago.

William McGee, superintendent of the **Mary Lee Candy Company** of Norwalk, Ohio, died recently.

Hollywood Brands, Inc., has bought daily participations in TV station WPIX New York "Kartoon Klub."

CALENDAR

Mar. 6—Kansas City Candy Club will have their monthly meeting at the Town House, Kansas City, Kansas.

Mar. 6—Northwest Candy Club monthly meeting at Grosvenor House, Seattle, Wash., breakfast at 9:00 a.m.

Mar. 8—Chicago Candy Club monthly meeting at the Furniture Club of America, 17th floor, 666 Lake Shore Drive, Chicago.

Mar. 9—Central Pennsylvania Candy Salesmen's Club, Inc., Reading, Pennsylvania, monthly meeting.

Mar. 9—The Detroit Candy Club monthly meeting at the Semos Restaurant, 505 Fort Worth Ave., Dallas, Texas, at 12:30 p.m.

Mar. 11—Metropolitan Candy Brokers monthly meeting at Hotel Empire, New York, at 8:00 p.m.

Mar. 11—Los Angeles Confectioner Sales Club, Inc., Rodger Young Memorial Auditorium, 936 W. Washington Blvd., Los Angeles. Business meeting and baseball day.

Mar. 13—Carolina Confectionery Salesmen's Club monthly meeting at Kuester's, Charlotte, N. C.

Mar. 15—Confectionery Salesmen's Club of Philadelphia monthly meeting.

Mar. 16—The Candy Executive and Associated Industries Club, monthly meeting, New York, New York.

Mar. 18—New York Candy Club, Inc., will hold their monthly meeting at the Park Sheraton Hotel.

Mar. 18—Empire State Candy Club monthly meeting.

Mar. 19—Golden West Candy Club monthly meeting.

Mar. 20—Great Plains Candy Club monthly meeting at the Castle Hotel, Omaha, luncheon at 12:30 p.m.

Mar. 23—Candy Square Club monthly meeting at the Riverside Plaza Hotel, 252 W. 73rd St., New York.

Mar. 23—The Detroit Tobacco & Candy Round Table will hold their semi-monthly meeting and dinner at the Hotel Detroiter.

Mar. 24—Southern California Association of Tobacco Distributors, Inc., monthly meeting at the Chapman Park Hotel, 6th & Alexandria Sts., Los Angeles.

Mar. 25—Tidewater Wholesale Candy Club monthly meeting.

Mar. 25—New York Candy Club, dinner at Park Sheraton Hotel, New York City, honoring 25 year members of the club.

Mar. 26—Badger Candy Club monthly meeting at the Astor Hotel, 924 E. Juneau, Milwaukee, Wisconsin, at 8:00 p.m.

Mar. 26—Boston Confectionery Salesmen's Club, Inc., monthly meeting at Hotel Kenmore, Boston, Mass. 8:00 p.m.

Mar. 27—Dallas Dancy Club monthly meeting at the Semos Restaurant, 505 Fort Worth Ave., Dallas, Texas, at 12:30 p.m.

Apr. 1—Confectionery Salesmen's Club of Baltimore monthly meeting at Gannons, 3150 Fred'k Rd., Baltimore, Maryland.

Apr. 5-8—AMA Packaging Show at Convention Hall, Atlantic City, N. J.

Apr. 29-30—Pennsylvania Manufacturing Confectioners Association production conference at Franklyn and Marshall College, Lancaster, Pa.

May 6-9—Candy Square Club will have week-end outing at the Nevele Country Club, Ellenville, N. Y.

May 16-19—Flavoring and Extract Manufacturers Association 45th annual convention at the Hotel Biltmore, New York City.

June 6-10—NCA convention at the Conrad Hilton Hotel, Chicago.

June 6-9—ARC convention at the Drake Hotel, Chicago.

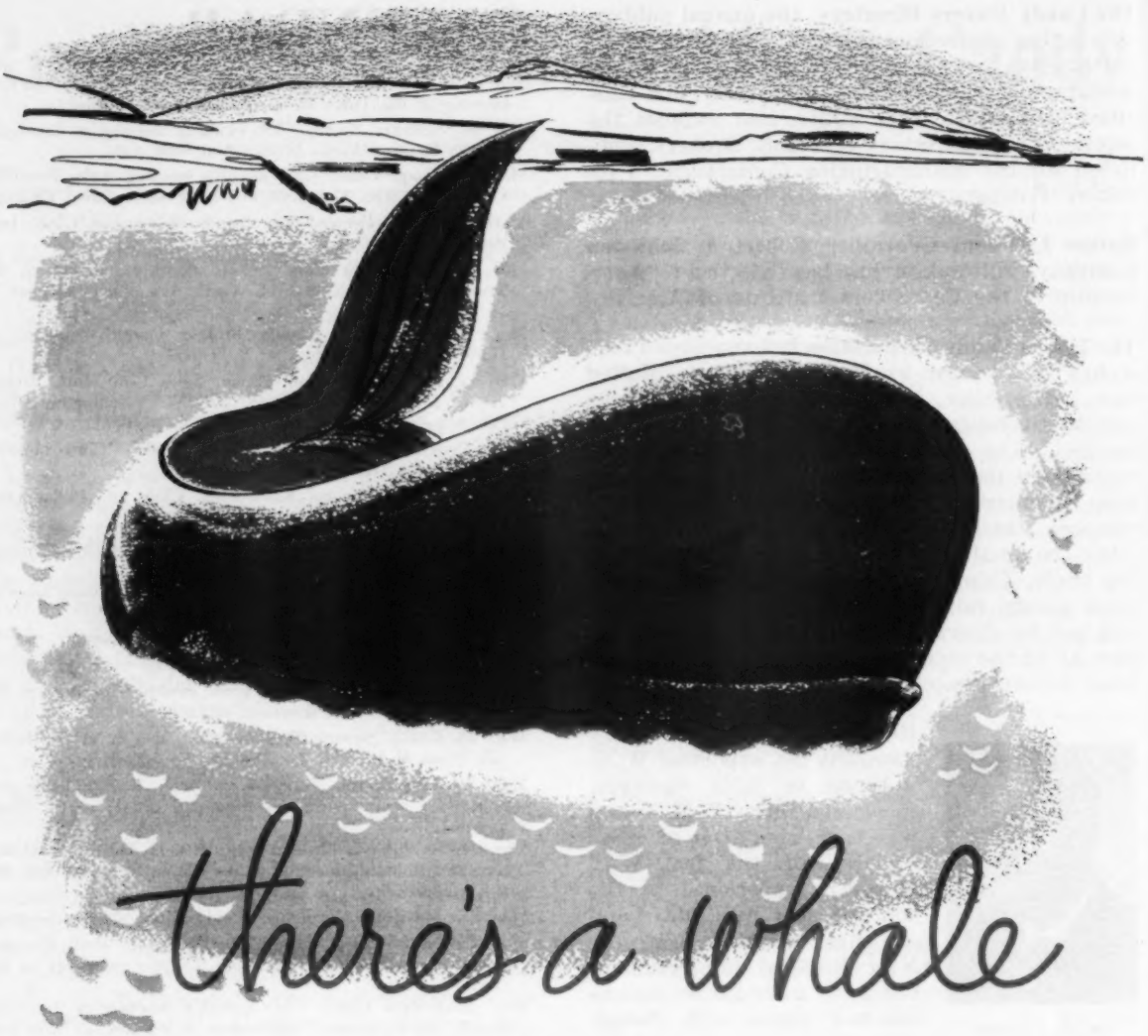
June 23-25—SWCA convention and Candy Show at the George Washington Hotel, Jacksonville, Florida.

June 24-27—Boston Confectionery Salesmen's Club, Inc., convention at Wentworth By The Sea, Portsmouth, N. H.

Aug. 1-5—National Candy Wholesalers Association convention and exposition at the Commodore Hotel, New York.

Aug. 17-19—Fifth Western Packaging and Materials Handling Exposition at the Civic Auditorium, San Francisco, California.

Sept. 24-25—Michigan Tobacco and Candy Distributors Association convention at the Hotel Statler, Detroit.



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You can realize substantial savings by switching to cocoa coatings made with Durkee's Paramount. "Paramount" coatings are high gloss . . . never waxy or oily and you do not have the problem of costly equipment change either.

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Successful operators across the country are turning more and more to "Paramount" coatings in a variety of flavors and colors—for top quality at low cost.

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MOLDING STARCHES

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Mrs. Steven's
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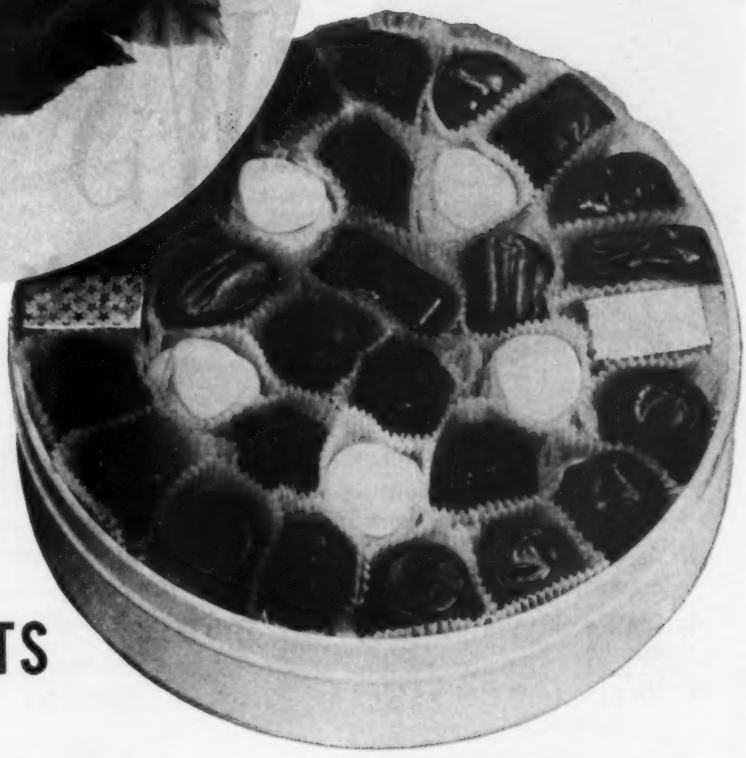

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Excello: An egg albumen-based nougat creme . . . for a variety of fudges, cream centers, etc.

Cocoanut "Paste": May be rolled from the container and coated with chocolate or cut into strips for slab work.

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BRANCHES IN OTHER PRINCIPAL CITIES OF THE U.S.A. AND THROUGHOUT THE WORLD

The Function of Carbohydrates in Confections

by JUSTIN J. ALIKONIS, Director of Research, Paul F. Beich Company

This paper was presented at the 123rd National Meeting of the American Chemical Society, Los Angeles, California, on the Symposium on the Use of Sugars and Other Carbohydrates in the Food Industry, on March 17, 1953. Mr. Alikonis is the president of the American Association of Candy Technologists, and is included in American Men of Science.

About seventy farm products furnish over ninety percent of all the raw materials for over 2,000 varieties of confections. If we would study the composition of these farm products we would find that they vary in their carbohydrate content. This paper will be limited to the sweeteners used in confections which on a dry basis are practically pure carbohydrates. Common sweeteners used in confections are refined crystalline cane or beet sugar, brown sugars, liquid sugars, corn syrup, dextrose, sorbitol, starches, molasses, honey, and maple sugar.

The 2,000 varieties of confections seem like a large number and probably the ACS membership has sampled only a fraction of these. If he is an average citizen, and I understand that chemists are human, then he has consumed about 18 pounds of candy annually and this adds up to over two billion pounds of carbohydrates to put our industry in a billion dollar a year class. To complicate the problems further, most of the 2,000 varieties have hundreds of different variations. There are as many as 500 different formulas

for nougats, and probably double that number for formulas for marshmallow. This situation provides a wide opportunity for candy research and development, which is growing rapidly in importance.

It is my difficult job today to try to convert trade terminology into technical terminology in the short time allotted me. It will be my plan to dwell on the functions of carbohydrates in confections and the reason for the candy technologists' choice. First, you must realize that the candyman is charged with producing a type of confection, with the highest of quality, at a minimum cost, to have a long shelf life in all types of weather conditions, be attractively wrapped, be consumed by the customer with a satisfaction so as to return for a repeat sale, and incidentally, be sold at a profit. Secondly, that candymaking has been an art and will remain an art in many of the small shops throughout the country.

Considerable credit is due thousands of candymen, who, with no scientific training, have produced confections which are scientifically balanced in formulas and procedures. Many of the secrets of the old candymaker were only known physical and chemical phenomena. As in other food fields, there is no magic in candymaking for there is a reason for everything, but these reasons are often times very complex because of the many factors involved (8).

To evaluate effectively the functions of carbohydrates in confections, it is appropriate to consider first the composition of the commercial types and grades of sweeteners and jelling agents.

The major factors considered by a candy technologist in determining sweetener usage are differences in physical and chemical properties of various sweeteners, their relative prices, and in some cases restrictions imposed by Federal or State Regulations and, to a lesser extent, advertising and sales programs, in-plant handling problems, consumer preference, and psychological factors.

The most important physical and chemical properties considered, in their order of relative importance to the candyman are: (1) relative sweetness; (2) solubility and crystallization characteristics; (3) density of liquid sweeteners and moisture content of solid sweeteners; (4) hygroscopicity; (5) flavor; (6) fermentation and preservative properties; (7) molecular weight, osmotic pressure, and freezing point depression (19).

I Typical Composition of Sucrose Products.*

	GRANULATED SUGAR		UNINVERTED SYRUPS		INVERTED SYRUPS	
	Medium	Fine	#1 Syrups	#2 Syrups	Partially	Totally
Moisture	0.02	0.04	33	33	27	24
Total Solids	99.98	99.96	67	67	73	76
Sucrose	99.95	99.90	66.6	66.3	42.5	3.5
Invert Sugar	0.01	0.03	0.1	0.4	30	72
Ash	0.005	0.01	0.008	0.08	0.1	0.12
pH			6.5-7.0	6.5-7.0	5.	5
Relative Solution Color	Clear Water White	Clear Water White	Clear Light Straw	Clear Light Straw	Water White Light Straw	Water White Light Straw

* Based upon Eastern Cane Refiners' Products.

II Typical Composition of Corn Syrups.*

	TYPES OF SYRUP			
	Regular Acid	Intermediate Acid	High Acid	High Acid Enzyme
Conversion				
Baume'	43	43	43	43
Refining	Carbon	Carbon	Carbon	Carbon & Ion Exchange
Moisture	19.7	19.05	18.9	18.5
Color) Loviband	.81	.55	1.3	.85
Heat Color) Series	2.7	2.37	3.0	2.9
D. E.	42.6	51.8	54.6	62.3
pH	5.0	4.98	4.84	4.96
SO_3 ppm	30	26.2	22.5	19.25
Copper ppm	2	1.4	2.6	.975
Iron ppm	3	3.22	2.75	1.8
Carbohydrates (as is)	80.1	80.8	80.8	81.5
Carbohydrates (dry basis)	99.7	99.7	99.7	99.7
Dextrose (as is)	17.5	25.9	27.06	29.88
Maltrose (as is)	16.7	20.5	21.88	27.44
Higher Sugars (as is)	16.2	10.95	10.76	12.88
Dextrines (as is)	29.7	22.7	20.8	11.6
Viscosity (Centipoises) @ 100° F	14,000	8,970	9,090	7,350

* Based upon average analyses of eight principal corn syrup producers.

III Refined Corn Sugar (Dextrose) a monosaccharide formed by the complete hydrolysis of corn starch.

	Dextrose Hydrate	Anhydrous Dextrose
Moisture	9.0%	0.25%
Dextrose (Dry Basis)	99.9%	99.9%
Ash	Trace	Trace
Form	Crystals	Crystals
Sweetness (Basis Sucrose 100%)	70	75
Color	White	White

IV Confectioners' Starches.

A. Moulding and Dusting Starches (Forms Physical shapes of confections) Unmodified corn starch in powder form 99% of which will pass 200 mesh sieve.

B. Oil Treated Moulding Starch (uses—same as A) Powdered starchblended with 0.1 to 0.5 unsaponifiable oil.

C. Thin Boiling Starches (Ingredients of candy) Acid Modified corn starch designed to cook out at lower viscosities and set back to firmer gel strength. Available in pearl or powdered forms.

Sweeteners vary considerably with respect to these properties as illustrated in the following charts. Requirements also vary widely, according to the qualities desired in the particular type or class of confection. The large variety of products turned out by the confectionery industry requires a remarkable flexibility from the carbohydrate which serve as major constituents of these products. There have been some

excellent papers on the sweeteners (15) (10) (13). I want to explain to you some reasons why we use certain types of carbohydrates for different types of confections.

For purpose of this discussion, confections are divided into three categories: (I) Hard candies or high boiled sweets; (II) Chewy confections; and (III) Aerated confections. The second and third categories are further subdivided into two classes, where the sugar solution is supersaturated (grained), and where the sugar solution is unsaturated (non-grained). Candies that grain, which are of crystalline structure, include the fondant types, such as cream centers, crystallized creams, fudge, pulled grained mints, rigid grained marshmallows, and soft and hard type pan centers. The non-grained candy group consists of marshmallows, taffies, chewy candies, such as nougats, caramels and molasses kisses, jellies, gums, etc. There are many intermediate or hybrid types of confections combining the characteristics of both the grained and non-grained candies (9). Sugar is the universal graining agent. The regulators are corn syrup, invert sugar, sorbitol, and others that retard or prevent sucrose crystallization.

Let us consider a few basic and useful properties of the individual sweeteners before we look at the classes of confections. Sugar (sucrose) has the highest rate of solution and the smaller the crystal size the more rapid the solution. It forms highly supersaturated solutions with a desirable physical property of withstanding supercooling. Most important of the chemical reactions of sugar is its ability to hydrolyze to produce invert sugar. The color developed in sugar solutions is the function of the pH and color cannot be formed unless inversion has first taken place. Invert sugar syrups are known for the physical properties of being hygroscopic and retarding the crystallization of concentrated sugar solutions (16).

Corn syrups are noted for their physical properties of retarding and controlling the crystallization of concentrated sugar solutions. This was formerly thought due to the dextrines present. Experience has shown that for practical purposes regular corn syrup, high conversion corn syrups, enzyme syrups, and invert sugar have equal effects and can be used interchangeably on a solids basis to control sugar crystallization in such products as fondant or fudge or other grained confections. Thus practically we have shown that dextrines are not necessarily the controlling agent. In physical chemistry we were taught about protective collodial action and this was the explanation for the action of the dextrines. Total solubility of the many varied sugars especially found in corn syrup and any moisture that may be present in the confection is so great that the crystallization of the sucrose is minimized. Singley each sugar increases the tendency to crystallization, but this factor of total solubility in liquid phase over-balances any such tendency. The important thing about corn syrups is that they effect the crystallization of cane sugar to a greater degree than invert and without the attendant handicap that invert possesses in that it might introduce excessive hygroscopic qualities. A candyman can produce most

the candymaker said:

"use almonds"

"Mix plenty of ALMONDS with either chocolate or caramel and you've got a winner". That's what this candymaker told us when we asked him about candy formulas.

use Blue Diamond almonds

That's what hundreds of the nation's leading candymakers do . . . *they use Blue Diamonds* . . . the top-quality, double-sorted almonds that actually cost you less because they are free from dust, foreign material and bitters, rigidly controlled for moisture content, and uniformly graded to minimize sorting and handling costs in *your* plant. Order Blue Diamonds as you want them . . . graded natural kernels . . or kernels split, sliced, halved, chopped, or diced. Write on your company letterhead for samples, prices, and free candy formula booklet.

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confections without corn syrup, but the sales hazards would be tremendously increased. Dextrines add viscosity which increases the body of non-graining confections.

Dextrose possesses the ability to change solubility characteristics and modify the relative sweetness of confections (12). Dextrose also tends to crystallize more slowly than sucrose and the solution at the same concentration is less viscous. Sorbitol derived from dextrose is a sugar alcohol. This carbohydrate seems to have plasticizing properties on confections. Besides its unique property of having a narrow humectant range it has an effect on the sugar crystal which results in its ability to keep candies soft for extended periods of time. It appears to be gaining in favor as a softening agent for not only grained confections but for non-grained confections as well (1).

Sweetness is a factor in candy making and somewhat of a problem. Do customers eat candy because it is sweet or are some confections a bit too sweet? In turn is this a detriment to greater consumption? The relative sweetness of maltose, dextrose, and corn syrups, using sucrose as a standard, varies directly with the concentration and is almost twice as great in high concentrations as in low concentrations. A significant supplementary effect of dextrose and corn syrups in combination with sucrose was found (5). This effect was sufficient to give dextrose and high conversion corn syrup the same sweetness as sucrose in 25% solutions consisting of 2/3 sugar and 1/3 dextrose or corn syrup. Regular corn syrup was as sweet as sucrose in a 40% solution consisting of 2/3 sugar and 1/3 corn syrup. Thus the relative sweetness of other sugars, compared with sucrose, varies with the concentration. In a mixture of sugars, if the sweetness values of the components are calculated in terms of dextrose sweetness the values become additive rather than supplemental as they appear to be when calculated in terms of sucrose sweetness as the standard (3). The sugar and corn products industries, through the nature of their products, certainly have given the confectioner a flexibility and a challenge to his creative abilities for producing new candy.

Let us consider briefly the practical functions of some of these properties of carbohydrates on the different types of confections.

I. Hard candies or high boiled sweets are essentially a highly supersaturated, supercooled solution of sucrose containing one percent or less of moisture. This solution, which may be likened to glass, is usually prevented from crystallizing by the addition of invert (or of invert formed in the batch) or corn syrup, or both, depending upon the properties desired. They are usually compounded in ratio of 70 sugar to 30 corn syrup for open fire cooking, 60 sugar to 40 corn syrup in vacuum processed batches. If the hard candy is to be relatively slow dissolving, a larger proportion of corn syrup will be used as in a banana caramel, which the kids want to last all day; if a quicker dissolving product is wanted, as a clear mint, then smaller amounts of corn syrup are used. Corn syrup controls sweetness and reduces friability of hard candies which are quite susceptible to fracture from mechanical shock due to internal stresses induced by unequal cooling. Syrups of high dextrine content and low dextrose and maltose fractions are used to control hygroscopic properties. Formulations and processing techniques in the manufacture of hard candy confections are designed to produce a product of low hygroscopicity, different degrees of sweetness, ungrained, dense and brittle in texture.

II. Chewy confections or the non-graining type, such as kisses, caramels, gums and jellies are formulated with sucrose, corn syrup, fat, and milk solids. The ratio of sugar solids to corn syrup solids, plus moisture of 12 to 15% is such that the carbohydrates remain in solution. The dextrines impart the body or chewy texture and in caramels the milk solids contribute flavor and texture. Natural and artificial flavors are accentuated by the sugar, invert and corn syrup. Fats, which are usually of the vegetable type because of their excellent shelf-life properties, are added to impart body and lubricating qualities. Emulsifiers such as Lecithin, Mono-Glycerides, Span 60 and Tween 60 are added to make the product more palatable (17). Standard 42 Dextrose Equivalent (D.E.) Corn Syrup has widest application since it contributes the desirable chewy characteristics without danger of excessive hygroscopicity.

Gums and jellies will be subdivided into two classes: (A) those utilizing starch as the gelling agent; and (B) those utilizing pectin as the gelling agent. Starch gums employ about 10% thin boiling starch which is gelatinized during processing by the free water in a sucrose-corn syrup solution cooked with it. It is essential to use excess water at the beginning of cooking to insure complete gelatinization, i.e. about one gallon of water for every pound of starch in the batch. No excess water is necessary in new continuous method (4). Sucrose and corn syrup are present in approximately equal proportions and this is concentrated to about 76% solids before casting into a corn starch moulding medium. On cooling, a firm, resilient, transparent gel results. Crystallization is prevented because of high solubility of mixed sugar present and gelatinized starch. Although standard 42 D.E. corn syrup is in most common usage for gumwork, the enzyme converted 53 D.E. type has advantages due to its humectant properties and extra sweetness. Up to 25% of the total sweetener may also be in the form of refined corn sugar which promotes sweetness, reduces viscosity of the batch, enabling faster moisture evaporation and prolonging shelf life because of its hygroscopic character. However, a high ratio of dexrtose to sucrose may cause graining in the piece due to the relatively low solubility of the former (11). The introduction of corn syrup has revolutionized the commercial production of gum work.

Pectin and low methoxyl pectin jellies are compounds of sucrose, corn syrup, pectin, citric acid, water, and a buffer salt, concentrated by heat to a solids content of about 75% which is necessary for proper gel formation. A 50-50 mixture of sucrose and corn syrup is conventional practice. This ratio effectively inhibits graining and gives the minimum difficulty from excess moisture absorption on the surface.

Because the pH of pectin jellies must be adjusted between 3.45 to 3.55 for proper setting of the pectin gel, significant quantities of invert sugar are formed from the sucrose giving rise to possible subsequent sweating problems. Accordingly, a corn syrup of relatively low D.E. is the logical selection so as to avoid undue amounts of hygroscopic sugars in the mixture. Sorbitol appeared to be effective in all pectin jellies whereas the MYRJ Emulsifiers were more beneficial in starch gum confections (14).

Unsaturated solutions, such as frappes and marshmallows, are not necessarily chewy, although tough marshmallow bars are certainly chewy. Both types of these products are formed with sugar and corn syrup in percentages rarely in excess of 55-45 respectively, with water and an aerating agent, usually albumen or soya protein for frappes and gelatin for marshmallow work. A new diffusion method for producing foam candy continuously results in longer shelf-life because of smaller uniform air cells and less gelatin or other whipping agents are required because of lessened "fatigue" in process (7). Due to the high proportion of corn syrup and the protection afforded by the protein colloids, the system remains unsaturated with respect to sucrose. Concentration of the total solids without incurring supersaturation to a level safe from micro-biological spoilage is made possible with the corn syrup or invert fraction, which may be either standard 42 D.E. or special 52 D.E. type in the case of uncoated goods, or special 52 D.E. and 63 D.E. enzyme or invert sugar in the case of coated marshmallow products. Molasses, honey or maple sugar are used in all types of confections, mainly as a flavor. Honey has very good humectant properties.

III. Aerated confections are the supersaturated solutions that form grained confections such as creams, fondants, nougats, fudges, grained marshmallow items. Fondants and creams are prepared by concentrating a sucrose, corn syrup and water solution to around 85% total solids, using a ratio of sucrose in excess of that of corn syrup so that precipitation will occur when the supersaturated solution is seeded or crystallization induced by mechanical means. This generally implies a proportion of 80 to 70 parts sucrose to 20 to 30 parts of corn syrup. The mixture is usually boiled to 238 to 242 F. Agitation or seeding is carried on at reduced temperatures of around 110 F, so that the crystals so formed will be of impalpable size. Some air is incorporated by the mechanical action of the equipment used in making the fondant. In the case of creams, the fondant is used as a seeding medium and a small percentage of egg or soya albumen in the form of mazetta is used to impart some air. The function of the corn syrup portion is to serve as a humectant that will keep the products soft and palatable; also to permit concentration of soluble solids in the liquid phase to a level of around 80% which will prevent growth of micro-organisms. All three types of corn syrups have application, the special 52 D.E. and enzyme converted 63 D.E. imparting more effective humectant properties. Invert

Why is he reaching for the same candy he got yesterday?

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in combination with corn syrup gives excellent results. Refined corn sugar may be used in limited amounts but it is not generally recommended because of its tendency to grain off in coarser crystals. Sorbitol with corn syrup seems to give a more uniform and whiter cream and fondant.

Fudges are similar to caramels, containing sugar, corn syrup, milk solids, vegetable fats, but are slightly aerated by mechanical agitation with the aid of egg or soy protein frappes. Soya proteins are gaining favor because they bring out the color of the cocoa powder or cocoa liquor used in chocolate fudges. Ratio of sugar to corn syrup is higher enabling precipitation of sugar crystals to form short, crystallized texture. All three types of corn syrups have application as in creams. Although the higher D.E. syrups are used in chocolate coated bars, the Quartermaster ration chocolate type covered fudge discs have 10 percent sorbitol to insure a shelf life of the product for a period of at least two years (6).

Grained marshmallows produced with sugar, corn syrup, and an aerating agent, such as gelatin or albumen. Again the corn syrup or invert sugar, or sorbitol serves to retain softness in a supersaturated, aerated sucrose system. Refined corn sugar (dextrose) may be incorporated to 20-25% of the total sweetener because of its hygroscopic qualities and higher fluidity qualities permitting faster beating to the desired specific gravity of the product. Standard 42 D.E. and special 52 D.E. syrups are preferred for this item. Enzyme converted syrups or invert, if used, should be used sparingly to avoid excessive softening due to absorbed moisture. What holds true for grained marshmallows will hold true for grained nougats. In this confection gelatin is seldom used and the aerating agent is usually egg albumen or soya proteins or a 50-50 mixture. Vegetable fats are used to promote smoothness and palatability to the confections. Since a high percentage of nougat confections are coated with chocolate or chocolate type coatings the 63 D.E. enzyme converted corn syrups or invert sugar are usually used.

Chocolate coatings are mixtures of sugar, cocoa butter, chocolate liquor, emulsifiers and flavor, and in some cases milk powder. The function of carbohydrates in confectionery coatings is practically limited to refined cane and beet sugars. A small percentage of dextrose and corn syrup solids are used on some special coatings, but these sweeteners tend to raise the viscosity of the coatings which call for more expensive cocoa butter or vegetable fat. In recent years, due to the commercial grind coatings used on candy bars and on coatings for syndicate outlets in which there is a coarser particle size distribution, as far as the dry ingredients are concerned, more sugar and less vegetable cocoa butter and fats are being used. The sieve-like particles have less surface area than sub-sieve range particles thus using less fat and producing a lower viscosity in the coating which results in considerable savings (18). The intensive use of "chocolate type" coating which uses cocoa powder as a rule instead of chocolate liquor and regular butters other than cocoa butter, and white and colored vegetable coatings that will withstand high temperatures and high relative humidities during the summer months has increased the use of this important carbohydrate, sugar (2).

The competitive relationship between sugar and corn sweeteners is actually in name only. I only hope that I have shown that there is a reason why a candy technologist chooses the various types of sweeteners. He is actually governed by the consumer, for it is only from repeat sales that confectioners are able to tell if they are satisfying consumers with their choice of carbohydrates in confections.

We as candy technologists will continue to study the functions of carbohydrates in confections to give you the highest quality possible. All we seek is your good will, "Good Will is the Disposition of a Pleased Customer to Return to the Place Where He Has Been Well Treated."—U. S. Supreme Court.

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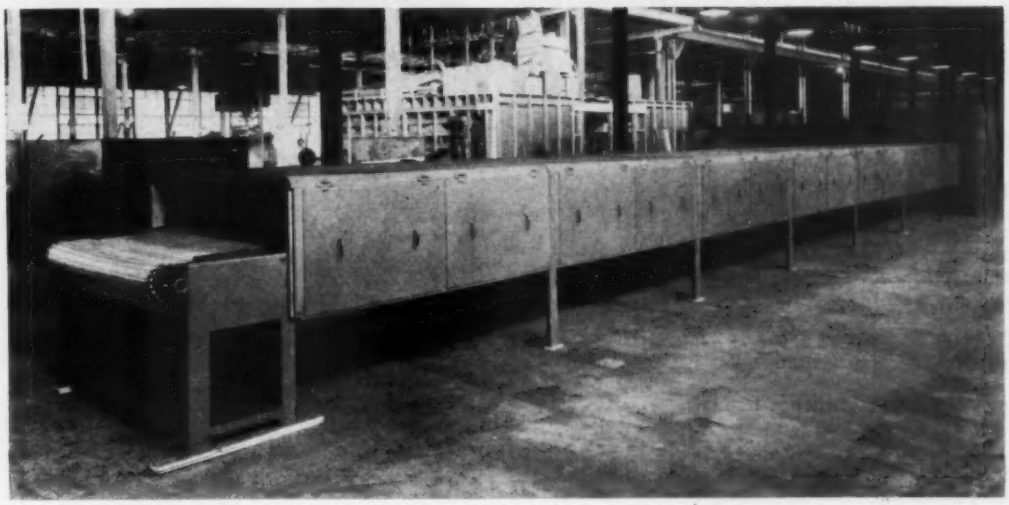
The latest Economy "Lustr-Koold" Bulk Chocolate Cooling Tunnel



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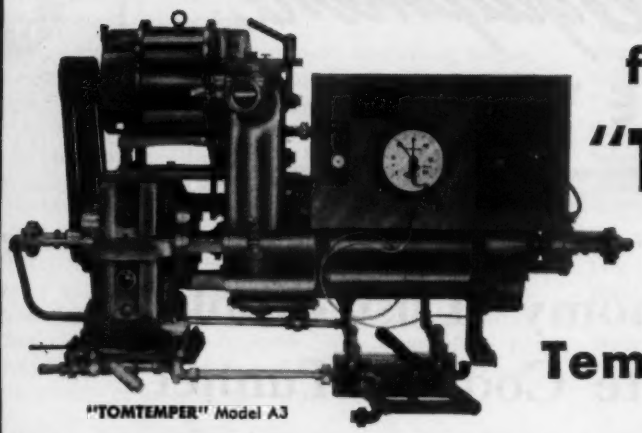

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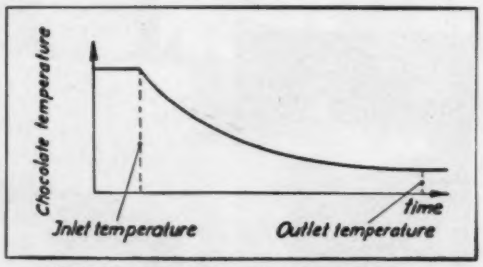
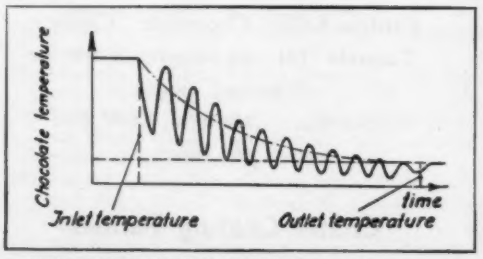


AVERAGE TEMPERATURE of chocolate as it progresses through the "Tomtemper" is shown above.



UNDERCOOLING AND MIXING Graph above shows how "Tomtemper" achieves the outlet temperature by undercooling and mixing.

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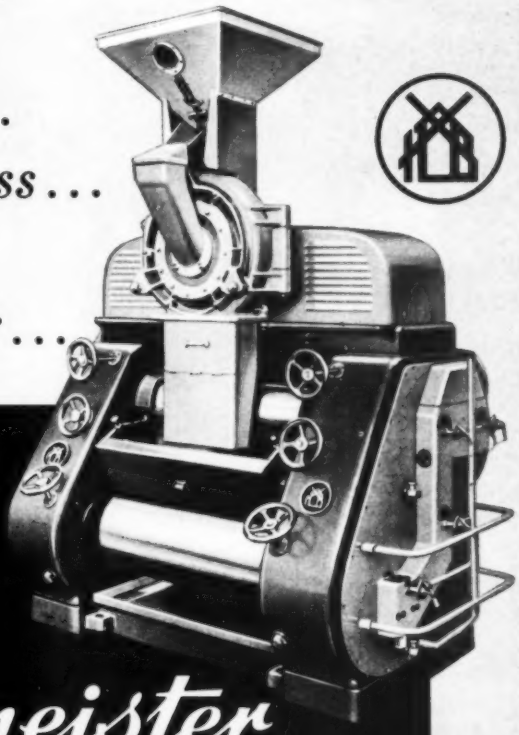

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The two top high speed rolls of this new Bauermeister Cocoa Liquor Mill are equipped with an automatic temperature control. An automatic regulator adjusts the flow of cocoa nibs into the disc mill to the proper amount the rolls can take. And a liquor feed arrangement, also automatic, between disc mill and refiner spreads the liquor evenly and prevents any separation of the cocoa butter. All these refinements result in an important labor saving. And when your cocoa liquor runs through the four vertical rolls, each equipped with efficient water cooling, you are sure of an evenly finished product-chocolate you'll be proud of. Send for catalog giving full information

GRINDING MILL has counter rotating slow speed centrifugal and grinding elements.

VERTICAL REFINER (4 rolls, water-cooled) of special chilled cast iron of uniform hardness and long life results in better and smoother crushing.

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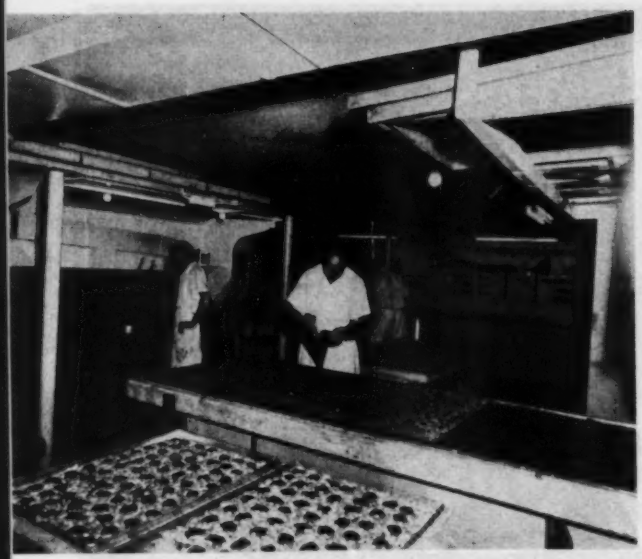


Carl Jensen, veteran candymaker, directs the manufacturing of over 500 varieties of candy.

Salesrooms and kitchens are housed in this 200 year old birthplace of General Israel Putnam

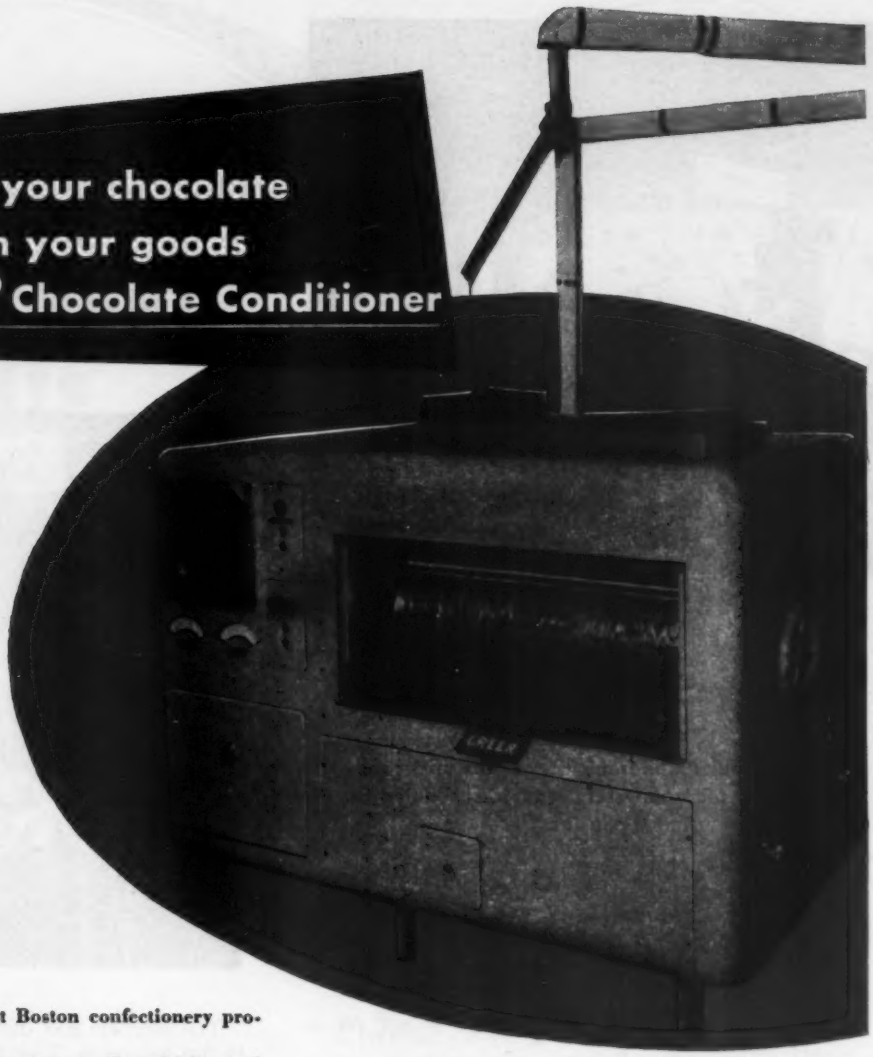
Showmanship establishes new candymaker

EACH Sunday this past summer cars lined both sides of U. S. Route 1 for a quarter mile in a rural area outside Danvers, Massachusetts. That was only the overflow from a fifty-car parking lot maintained by Putnam Pantry Candies. The lot is alongside the 200-year old colonial home that is now the factory and sales room of their flourishing two-year old candy business.

As a result Mr. and Mrs. Galo Putnam Emerson are now completing the second addition to their building to keep the growing business "under cover." Started in July of 1951, the firm now has a total of 51 employees. The administration and sales are under direct supervision of the Emersons, while the candy-making is directed by Carl Jensen, a veteran master candymaker of wide experience.

Birthplace of the Revolutionary War hero, General Israel Putnam, this building's entire first floor is devoted to displays of candy. These are set out in the open on low tables for all comers to see—and smell. Customers are encouraged to pick their own assortments in as wide a variety as possible. While this takes more of a saleswoman's time in waiting on them, it usually results in the sale of more candy per cus-

put *SNAP* in your chocolate and *GLOSS* on your goods with a *GREER* Chocolate Conditioner



From the desk of a prominent Boston confectionery producer come these comments:

"It has been more than a year since our Greer Melter and Chocolate Conditioner was installed in our plant. During this period we feel that this piece of equipment has been quite beneficial to our operations in the chocolate coating department . . .

"1. More rapid start for both hand dippers and enrober crew in the morning, meaning a daily saving of about ½ hour.

"2. Improved appearance and shelf life for our chocolate coated products, thus improving our quality.

"3. Delivery of chocolate to the chocolate enrober and to the hand dippers at a uniform temperature has made possible increased production in both departments.

"4. We have greatly reduced the poundage of chocolate melted in our chocolate room, using that room now mainly for special coatings and consequently have released this manpower for other work.

"We are thoroughly sold on the results produced by this machine in our plant . . ."

A leading biscuit manufacturer in Canada writes:

"Your two Chocolate Mixers and Conditioners have now been in operation for more than seven months.

"This equipment has been one of the best buys we ever made. We settled so many problems by using your Conditioners:

better tempering

the coatings get into the enrobers at a regular flow and *always* at the same temperature

savings in kettles, floor space and labor

"They changed our whole concept of a chocolate coating department."

Write today for details, specifications, prices . . . investigate the benefits of this *modern* and *proven* system.

We will gladly furnish references, or arrange visits to installations on request.

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GREER

The Hard Candy Corner shows Galo Emerson setting up a display, while his son starts on an errand.

The very popular Children's Corner features candy and assortments for youngsters, and is scheduled for expansion.

tomer. The buyer rarely takes just one or two pieces in each choice.

The displays are grouped about the sales rooms by types of candy, leaving plenty of room for people to mill around each table. One of the most popular displays is the Children's Corner, which is to be expanded into the newest addition of the building when it is completed. Not only many novelties are shown here, but the Emersons are finding a big demand for candy in special containers that can be used as toys after the contents have vanished.

The most popular candy in the Children's Corner is the "fried egg." A dark yellow mint is embedded in a very realistic large white mint. Over this "yolk" is a very thin coating of white to give the characteristic milky appearance of the fried egg. Introduced as a Halloween novelty, the fried eggs' withdrawal drew such protests that it has become a staple item in the youngsters' department.

Among the adults the various fudges regularly prove most popular by a narrow margin. In the course of a year Putnam Pantry Candies offers about 500 different choices, counting all the seasonal novelties and the several types of chocolate. These choices have survived a process of elimination during which many more were tried.

The kitchen and the chocolate dipping rooms are in the basement. This is why the Emersons are able to do such a volume in the confines of the old homestead. As modern as chrome, aluminum and enamel can make it, this airconditioned basement is part of the show Putnam Pantry Candies puts on for their customers.

A sign at the head of the basement stairs invites customers to come take a look for themselves (so does all the literature distributed by the firm). The kitchen can be observed from the foot of the stairs, though customers are free to wander through if they wish. In the opposite direction a corridor runs along the partition enclosing and insulating the dipping room. Set in the partition is a large picture window giving a clear view of the entire room. A sign in the room points out the melters for the three grades of chocolate (dark, milk and white).

Opening onto this corridor are large clean restrooms for the use of customers, as well as the employees.

The Emersons have done a superb job of retaining the colonial homestead atmosphere in so vigorous a busniess operation! As the illustrations show, they have retained or duplicated the exposed hewn beams, the wide floor boards, the quaint wallpapers and the

for Enrober Belts it's VOSS

HI-GLOSS No. 3 BELTS, for example . . . the plastic Cooling Tunnel Belts which put glossy, mirror-like bottoms on your chocolates. Your product will wear that "Quality" look which means so much to sales — and you get outstanding production benefits, too. HI-GLOSS No. 3 won't crack—won't peel. It won't wrinkle either — you can count on longer belt life. It's a more sanitary Belt, because its plastic top cleans in a jiffy. And it's easy to splice — can be run immediately after splicing! No wonder leading candy plants everywhere have adopted this unique Belt!

HI-LUSTRE BELTS are the proper selection for heavy-duty requirements. These *Double-Texture* Enrober Cooling Tunnel Belts are really built to "take it." They stand up indefinitely even under the most demanding day-in, day-out operation. Available in White, Green or Black, their fine texture and specially developed coatings prevent marred goods. Yes—HI-LUSTRE Belts are the positive answer to the high cost of over-frequent shut-downs and replacements. Just the thing for Packing Table use, too.

VOSS ALSO SUPPLIES

Endless Bottomer and Feed Belts—White Neoprene treated, or plain . . . Packing Table Belting—plain or treated with smooth white flexible coating . . . Caramel Cutter Boards . . . Batch Roller Belting . . . Wire Belting—for enrobers and special conveyors . . . Corrugated Rubber Pulley Covers . . . Canvas Specialties . . . and all your other Belting needs.

VOSS
BELTING & SPECIALTY CO.

5647 N. RAVENSWOOD AVE., CHICAGO 26
118 E. 28th St., New York 16
18 Richards Circle, West Newton 65, Mass.

Customers have a voice, too. The young lady has just requested "peanut butter fudge."

The interior of the building was kept as close to the old New England style as possible.

plain sturdy Yankee furniture. On the exterior a wide lawn, threaded with red brick walks and skirted with ramblers and bright flowers, sets the house apart from the parking place.

At night the building is flooded with light from "spots" distributed about the yard, while a string of white Christmas tree lights outline the eaves and corners. Floodlights also illumine the parking lot and the walks to the building. This lighting is important, for, aside from Sundays, the evening is the busiest time. The sales rooms are open seven days a week from 9 a.m. until 10 p.m.

Up to this point we have said nothing about the quality of the candy, nor should we need to. There can be *no* corner cutting in the ingredients, to keep customers coming back the way they do. This quality has also been instrumental in developing a sizeable mailorder business. Much of the latter is with people who have never been to Danvers, but who have sampled Putnam candy sent them by their friends.

Every package of candy mailed out by Putnam Pantry Candies has enclosed an order blank. This blank includes a price list and a brief account of the firm's background. The returns from these are very high. If the blank is filled in for a gift order, a blank is not only enclosed with the gift, but another blank goes to the donor with a note thanking them for their order.

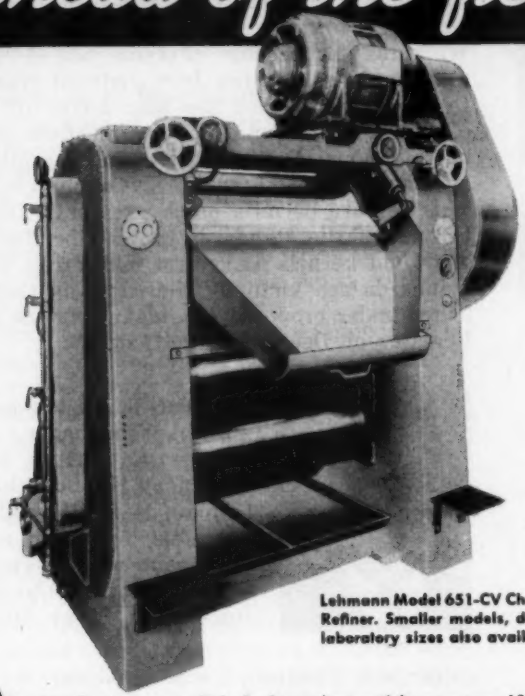
Prior to holidays, particularly Christmas, when candy orders are highest, special advance order blanks are made available in the sales rooms. These permit a customer to order candy for a later pick-up. Then the Putnam people can fill out and pack orders while business is quiet in the sales room. At the same time the customer is assured of getting the choices preferred for the holiday season.

The Emersons have used the Boston newspapers for advertising to call attention to their candies, but word-of-mouth is their best promotion medium now. Also very helpful in drawing tourists and summer vacationers has been their advertising in Ray Walker's Motel guide, which is widely used in the New England area.

All in all, from the customers' viewpoint the Emersons have built a business that is *exciting* to visit. It is more than a simple purchase of candy that draws people out of their way to the Putnam Pantry Candies house. There is so much to see and do that people drive from Boston 18 miles away for that specific purpose. They deliberately devote an evening or a Sunday afternoon to the visit, making an event of it.

—the end

One thing after another keeps LEHMANN CHOCOLATE REFINERS *ahead of the field*



Lehmann Model 651-CV Chocolate Refiner. Smaller models, down to laboratory sizes also available.

A manufacturer can't help learning a thing or two if he has been in business for 120 years as we have. Take chocolate refiners, for instance. Although we have been designing and making them for many years for the Chocolate Industry, we are always learning something new about them. And those new ideas tend constantly toward lower operating costs for the user of LEHMANN CHOCOLATE REFINERS.

In the panel are listed a number of refiner improvements developed by Lehmann over the years. There were also many minor ones—important in their aggregate contribution to efficiency and economy.

Lehmann is equipped to design complete plant layouts for chocolate processing from the cocoa bean to the finished product. Lehmann engineered installations emphasize improved operating efficiency and savings in labor. They pay for themselves in a short time.

If the problem of what to do about manufacturing costs is on your mind today, send for us. We may be able to make some constructive suggestions.

Sight-O-Matic Control—Four gauges, one at each end of slow and fast rolls, enable operator to see exact changes in roll pressures as he adjusts them. Insures fast, accurate, positive setting of roll pressures to accommodate requirements of any formulation.

Simplified Adjustment—50% of handwheel adjustment points are eliminated. Second and third rolls adjust themselves automatically through pressure from top roll.

Pneumatic Discharge Control—take-off knife pressure constantly maintained by continuous air pressure to knife blade through pressure regulating valve. Indicating gauge in air line shows amount of knife pressure.

Roll Temperature Control—dial thermometers at each of roll water outlets and at water inlet manifold guide control of discharge water temperature from each roll.

Centrifugally-cast Dual Metal Rolls—centrifugal casting technique provides tighter, denser grain structure. Intensively hard chilled white iron surface inseparably bonded to gray iron core.

Centralized Lubrication—lubrication headers are concentrated on the discharge side of Lehmann Refiners. This makes grease gun lubrication of all bearings easy and convenient.

Hinged Motor Base—makes it easy to adjust belt tension, assuring efficient power transmission and quiet operation.

Ask us about other well-known Lehmann chocolate processing machines: the Model 48DL-X Triple Mill, the Model 40 M-U 4000 lb. Emulsifier, the Model 912-AC Refiner, the Model 10M 1000 lb. Paste Mixer, the Model 450 Disc Conche, the Model 913AC-L Three Roll Liquor Mill, the Model 88DSL Cracker and Fanner, the Model 10L 10 lb. Depositor with Conveyor, etc.

LEHMANN®

J. M. LEHMANN COMPANY, Inc.

MAIN OFFICE AND FACTORY: 546 NEW YORK AVE., LYNDHURST, N. J.

"...can't stop there, it's a Hamilton sanitary kettle"

Smart bugs know they can't make a home where there is no food. The new Hamilton Style SA Kettle is functionally streamlined, *eliminating* flanges, joints and crevices where bacteria and food residue accumulate. Even the cylindrical legs are sealed and adjustable. Polished to a high lustre inside and out, the brightly finished surfaces are easily cleaned.

Built for pressures to 125 psi, the SA Kettle is available either two-thirds or completely steam jacketed. Find out complete details today by mailing the coupon.

Hamilton Copper & Brass Works Dept. P
820 State Ave., Cincinnati 4, Ohio

Please send complete information on the new Hamilton SA Kettle.

NAME_____

ADDRESS_____

COMPANY_____

BRIGHTON

Hamilton copper and brass works

Division of the Brighton Copper Works, Inc. • 820 State Ave., Cincinnati, O.

Supply Field News

The U. S. Department of Agriculture announced that revised U. S. Standards for Shelled English Walnuts will become effective March 15. The number of grades has been reduced from three to two, but provision has been made for the use of any one of four color classifications and any one of four size classifications in connection with either U. S. No. 1 or U. S. Commercial grade. This feature permits much greater flexibility in the use of the standards to describe the quality of walnut kernels packed for marketing. The new standards are virtually the same as those published under proposed rule making in the Federal Register of December 19, 1953.

Malcolm M. Coston has been appointed manager of the Process Equipment Division of **Rodney Hunt Machine Co.**, Orange, Mass. He will be responsible for sales and development of the Turba-film Evaporator and the Rodney Hunt-Luwa Spray Dryer.

Cellu-Craft Products Corp, converters of transparent and other flexible packaging materials, has opened a new plant at Addison, Illinois. This plant of 22,500 square feet will serve the entire midwest area, under the direction of Sid Luckman, general manager of midwestern operations.

The Buffalo and Western New York Confectioner's Association held an installation of officers party-dance February 16, in Buffalo. The new officers are: **Paul Elsinghorst,** president; **Louis J. Merlino,** vice president; **Helen A. Christodoulou,** treasurer; and **Claude L. Kingsley,** secretary.

N. T. Gates Company has announced the appointment of **John T. Duffy** to the sales staff, covering the Greater Delaware Valley Area in the Industrial Sales Division of the company.

Dodge & Olcott have recently added new research facilities to their plant, including a lab for organic research and an analytic department. These laboratories are under the direction of **Willem Lasthuysen,** one of D&O's new chemical directors.

The Packaging Machinery Manufacturers Institute will hold its annual meeting at Grove Park Inn, Asheville, N. C., September 23-26, 1954.

The Association of Manufacturers of Confectionery and Chocolate of New York held a testimonial dinner honoring **Victor A. Bonomo** on February 3rd. Pictured above is the dias group. Standing, left to right, Herman L. Heide, Paul E. Forsman, Robert Krone, Charles F. Haug, A. Milton Mullens, Charles R. Adelson, Irvin C. Shaffer, Frank J. McCrosson, James A. King, Philip P. Gott. Sitting, William F. Fischer, Tico Bonomo, Hon. Abraham L. Multer (Congressman & Principal speaker), Victor A. Bonomo, David P. O'Connor and Harry Lustig. 448 attended the dinner, and heard Mr. Bonomo express his thanks for the honor. He also drew the attention of the industry to the many problems facing us today, and urged that the industry, including its suppliers, unite to surmount these difficulties.

Shellmar-Betner Flexible Packaging Division of Continental Can Company has announced the establishment of a new Pacific Sales Division, with **O. D. Carlson** as manager of sales in South Gate, Calif. **C. V. Ore** is the new District Sales manager for the Northern Pacific Area with offices in San Francisco, and **T. H. Morris** is district sales manager for the Southern Pacific Area with headquarters in South Gate. **F. S. Hinkle** has been named director of product sales for the entire Division.

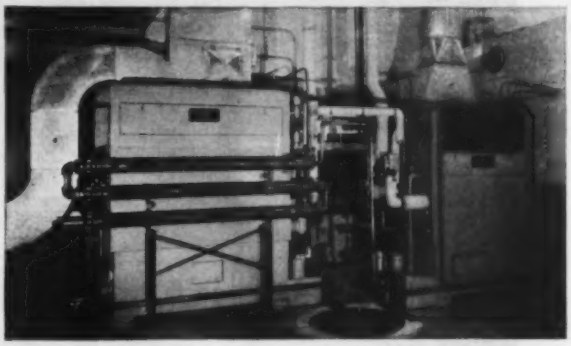
American Food Laboratories has appointed **Robert Moser** to its sales staff to cover the New England area.

William Hayssen, president of **Hayssen Manufacturing Company,** has appointed **J. Clint Johnston** as general manager and assistant to the president. Mr. Johnston started his career as a service engineer on all makes of packaging machines, and was the divisional sales manager for Hayssen for several years in three different territories.

Packaging Machinery Company will have in operation at the Packaging Exhibition a new Tray-Lock Model TLB machine, and a Model FA machine with a new cross tear-tape unit. This unit accurately locates cellophane tape at the end of the package or in any location in relation to its length. The tape can be made to project any desired distance beyond the lap of the cellophane, making it easy to grab hold of and tear off.

This NEW METHOD DRIES AIR

PRECISELY AS YOU WANT IT



NIAGARA CONTROLLED HUMIDITY AIR CONDITIONING

This method removes moisture from air by contact with a liquid in a small spray chamber. The liquid spray contact temperature and the absorbent concentration, factors that are easily and positively controlled, determine exactly the amount of moisture remaining in the leaving air. Heating or cooling is done as a separate function.

The Niagara's Controlled Humidity Method using HYGROL moisture-absorbent liquid is

Best and most effective because . . . it removes moisture as a separate function from cooling or heating and so gives a precise result constantly and always. Niagara machines using liquid contact means of drying air have given over 20 years of service.

Most reliable because . . . the absorbent is continuously reconcentrated automatically. No moisture-sensitive instruments are required to control your conditions.

Most flexible because . . . you can obtain any condition at will and hold it as long as you wish in either continuous production, testing or storage.

Easiest to take care of because . . . the apparatus is simple, parts are accessible, controls are trustworthy.

Most compact, taking less space for installation.

Inexpensive to operate because . . . no re-heat is needed to obtain the relative humidity you wish in normal temperature ranges and frequently no refrigeration is used to remove moisture.

The cleanest because . . . no solids, salts or solutions of solids are used and there are no corrosive or reactive substances.

For complete information write

NIAGARA BLOWER COMPANY

Over 35 Years of Service in Industrial Air Engineering

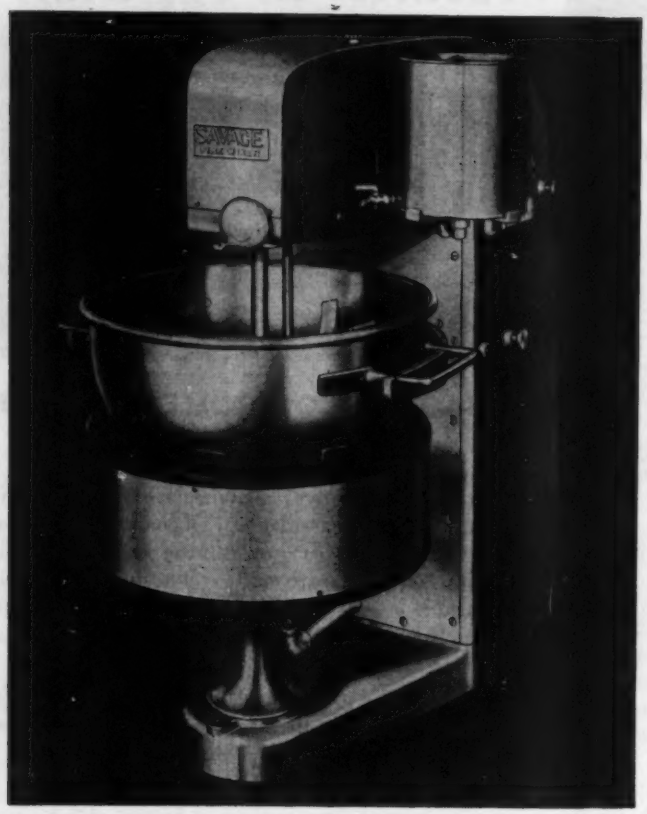
Dept. MC, 405 Lexington Ave. New York 17, N. Y.

Sales Engineers in Principal Cities of U. S. and Canada

SAVAGE LATEST FIRE MIXER

MODEL S-48

Thermostatic Gas Control—Variable Speed



The Savage Latest Fire Mixer, Model S-48, is Streamlined and Sanitary and has many new features and conveniences:

Automatic Temperature Control
Variable Speed from 30 to 60 RPM
Break-back within floor space 32" x 48"
Aluminum Base and Body Castings
Atmospheric Gas Furnace with Stainless shell
Removable Agitator, single or double action
Stainless Cream Can and Stainless Drip Pan
Copper Kettle 24" diameter 12½" deep or 16" deep

You can save labor and obtain uniform batches by setting the thermostat for degree cook desired. It cooks and mixes batches of caramel, peanut brittle, peanut candies, fudge, nougat, gum work, and with double action agitator is ideal for coconut candies and heavy batches.

Your inquiry invited

Since 1855

SAVAGE BROS. CO.

2638 Gladys Ave. Chicago 12, Ill.

Patents

2,667,723

METHOD AND APPARATUS FOR PRODUCING WRAPPED ARTICLES

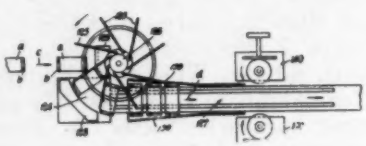
Jacques Edwin Brandenberger, Paris, France, assignor to Societe la Cellophane, Basel, Switzerland, a Swiss company

Application November 26, 1952, Serial No. 322,772

Claims priority, application Great Britain

September 12, 1952

6 Claims. (Cl. 53—55)



1. An apparatus for the continuous production of wrapped articles, made from a pasty material, comprising means for pressing together the opposite surfaces of a flexible tube which has been filled with the pasty material to form a closure strip across the tube, means for severing the closure strip to divide the tube into individual bars, means for carrying the individual, wrapped bars along in a substantially horizontal plane and means for applying to the severed edges of each closure strip, as the bars are carried along, a sealing substance, said closure-sealing means comprising, for each closure strip, a driven roller rotating in said plane, each roller having a peripheral groove to hold the sealing substance and means to supply said substance to the peripheral groove which is carried around in the groove to the closure strip for application thereto to form, along each entire edge thereof, a sealing band.

2,665,210

METHOD OF REFINING RAW COCOA AND RAW MASSES MADE THEREFROM

Oskar Friedrich Kaden, Hamburg-Gross Flottbeck, Germany

No Drawing. Application July 5, 1951, Serial No. 235,371

Claims priority, application Germany

July 15, 1950

3 Claims. (Cl. 99—23)

1. A method of refining raw cocoa and raw masses made therefrom, which includes the steps of subjecting the material to be refined, in the presence of water containing a small quantity of a mixture of alcohol and acetic acid, to pressure above atmosphere for a short period of time, and immediately thereafter subjecting the thus treated material to pressure below atmosphere.

To be effective, roadside signs must be kept in top condition, and locations checked regularly. The most effective signs are those that show some ingenuity in construction, and tell their story forcefully and in few words.

Techniques for Using

Roadside Signs

BASIC principles of sign usage are fairly well known to most candy manufacturers. Outdoor advertising has become so important in our product merchandising that acquiring this knowledge is a definite "must."

However, the established requirements such as locations on good highways near the distribution areas, selection of colors which can be read easily and at a distance, spotting them where they can be easily seen and the use of eye catching words, are not enough to assure maximum return from one's dollar investment in these signs.

Take, for example, the sign shown in Figure One. It illustrates the great importance of constant attention to maintenance even though it is an extreme example. A sign such as this, of course, is utterly valueless. One in still readable condition but shabby and unkempt, is even worse, for it advertises one's product as in all likelihood as bad as the sign itself.

The wise candy manufacturing executive makes a monthly check up on every one of his signs for this reason through either his own offices or those of his distributors. Even if he has a sign maintenance contract with some firm in that business, a regular personal check-up is in order. The sign company has many such contracts and may never give our particular signs the attention or care we want unless we insist on top grade service.

The importance of ceaseless and painstaking attention to this branch of our advertising is particularly great if we realize that the condition of any one of our signs can drive business away from our product. Bright, attractive signs sell. Ones obviously unattended for a long period of time discourage purchase of our candy.

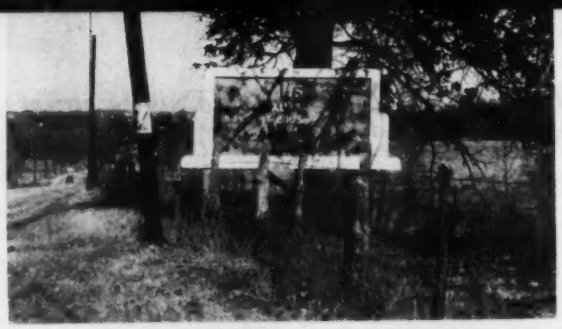
It costs very little to touch up signs. In fact, if it is done often enough, an ordinary maintenance man can do the job. This applies not only to painting but to maintenance of the wood and metals and sign mounting as well, and particularly to keeping grass, weeds and shrubs from obstructing even the smallest part of our sales message on each sign.

Another condition to guard against, particularly on small signs, is their danger of becoming buried in a cluster of other signs, such as we often see along the highway. If the candy manufacturers sign is up front he has still a very good spot insofar as all signs in the cluster are concerned. In every such instance, the sign up front is easily read and at some distance but if ours is in the third or fourth spot its effective value falls almost to zero. The motorist driving by at from 50 to 80 miles an hour can receive an impression only from the first such sign; he or she will seldom even attempt to note the others in the cluster.

Such conditions frequently arise without the manufacturer's knowledge. When the initial placing of the sign was made it may have been all alone. But, as months went by, other signs were planted around the location and before he knew what had happened, his was completely "boxed" in.

The monthly inspection trip on such signs will discover this as soon as it happens. Then our best move is to change the location of such a sign immediately, unless it is still the first one of the group within the cluster.

Another often overlooked factor of great importance is in the size and shape of the sign itself. The next time you drive along the highway, observe the monotony of the conventional 24-sheet size boards you see and note how little they impress you. You



will also find that any sign which varies in size or shape from this familiar pattern attracts your attention, simply because it is unusual.

Figure Two shows such a sign. It is effective because it varies from standard size and because it breaks away entirely from the conventional square or rectangular shape. Note also that a little extra was spent to mount it better than average, thus providing protection from bushes and weeds growing at its base.

A long and narrow sign, such as shown in Figure Two, also breaks away from the conventional shape. Here you will notice that the sign has been designed to do an eye catching job with the use of the replica of a box of candy as well as the outlined letters of welcome.

Figure Three shows a sign which has several good features designed to provide eye-catching appeal. The use of several different angles in its construction, light strips at the base to set it off from dark ground areas, reproduction of the label itself and separate direction strip signs all give it eye appeal that makes it difficult for the passer-by to avoid giving the sign a "good look."

Many otherwise effective signs reach only a minute portion of their available audience simply because they set against the sky and blend right into it. In spotting our signs, it is well to keep in mind that the motorist instinctively looks away from the bright sky while he is driving. Signs which blend into that sky are lost altogether as far as he is concerned.

Figure Four shows how a sign can be placed to avoid all such troubles. Set against a background provided by a larger sign looking in the other direction this one, being of light color, virtually stands out and demands to be seen, particularly with the large growth of trees behind the whole set-up.

Figure Five shows how a sign placed as close as possible to a roadside fence makes it appear larger and easier to see by the passer. This also lessens the chance of smaller signs being erected in front of it.

It often pays to use added appendages to one's signs in order to put over specific points which may be lost if inserted in the general sign layout. In Figure Three this is done with two single lines, at top and bottom, giving directions.

Another factor of great importance is readability of signs under the present high speed conditions. The majority of existing signs along our highways today were erected before the advent of super highways and fast traveling. Many now being erected still ignore these conditions. All of those shown in accompanying illustrations have been designed to satisfy this requirement of modern roadside signs.

Few indeed are the travelers who pass signs at speeds of less than fifty miles an hour. At these speeds, our sign must do an extremely quick selling job. Note how all of the examples shown here present their messages in short, easy to read style . . . with a theme capable of being impressed by a few words or a picture.

Check your signs then to be sure of a clear view and maximum readability for the brief time that the

motorist will have it in sight. Remember he has to absorb its complete message in the few seconds he can take his eyes off the road during the period the sign is in his range of vision. Remember, too, there is an advantage in facing our signs as much toward the approaching traffic as possible (where a long clear view is available) to give motorists a few additional seconds in which to read what we have to say.

Here are some facts well worth keeping in mind:

1. Pick a good location where the sign will be seen by the greatest number of potential customers.

2. Check the background and be sure approaching cars have a clear view of it. Clean away weeds and brush that hide it.

3. Unusual shapes and sizes are better than the conventional rectangles.

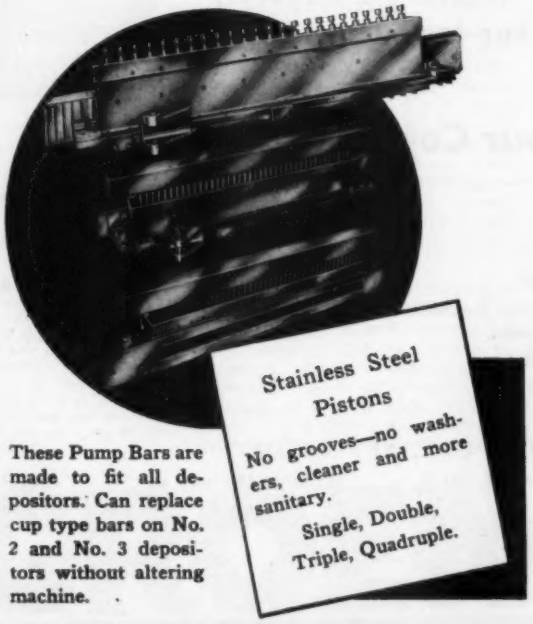
4. Select bright, weather proof colors and touch them up to keep them bright.

5. Keep your message brief. Use short words, large type. Change the wording or color scheme occasionally.

Remember, the purposes of these sign boards are to familiarize people with our business and our product and to invite their trying our candy. If they are properly located and well planned they are worth many times their cost. Regular inspection and maintenance will protect our investment and will keep them working for us.

—the end

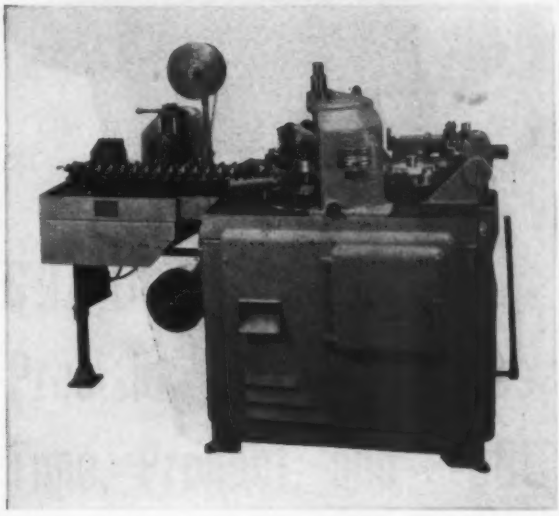
MILL RIVER *Water Sealed* PUMP BARS



These Pump Bars are made to fit all depositors. Can replace cup type bars on No. 2 and No. 3 depositors without altering machine.

MILL RIVER TOOL CO.
338 WORTHINGTON ST., SPRINGFIELD, MASS.

Latini's Latest Profit Maker



Latini Die Pop Machine With Continuous Wrapping Attachment

You can now make and wrap pops in a continuous operation—and they're not just pops—they're LATINI DIE POPS.

225 wrapped Die Pops per minute require only one operator: the spinner.

The wrapped pops go right through for cooling, then packing.

There is no handling, chipping, breaking, etc., which all means dollars and cents to you.

In addition, the sandwich wrap saves cellophane —uses about 50% of other type wraps.

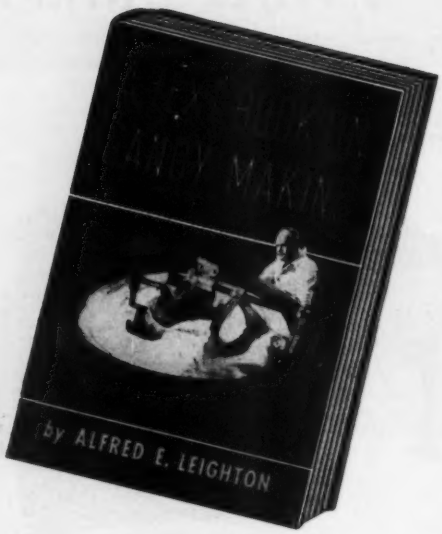
It All Adds Up To Profits With A Quality Item.

representative:

John Sheffman, Inc.

152 W. 42nd St. New York 36, N. Y.

A Practical Book For Candymen



$6.00 per copy

Treating the manufacture of candy in the simplest terms

Here is the textbook that the candy manufacturing industry has needed for some time. Here the reader can learn the basic fundamentals of candy making, the "how" and "why" of the various operations in non-technical terms. An ideal book also for the candy plant executive not directly connected with the manufacturing operations, A TEXT BOOK ON CANDY MAKING gives him an insight into the overall problems and methods used in the production departments. The foreman trained in certain specialized operations can learn something about the other operations in his plant or other plants that may help him to advance to positions of more responsibility. The simple, easily understood language of this book makes it pleasant and profitable reading for anyone interested in the manufacture of candy.

Down-to-earth reading—in non-technical language

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. . . In non-technical language

Practical Lessons Include:
Equipment and Ingredients
Hard Candy—Marshmallows
Chocolate—Fudge—Fondant
Jellies — Caramel — Nougat

Book Department 4
The Manufacturing Confectioner
Publishing Company Date.....
418 N. Austin Blvd.
Oak Park, Illinois

Gentlemen:
of "A TEXT BOOK ON CANDY MAKING"
Enclosed is my check for $..... to cover the cost of ..... copies

Name ..... Title .....

Firm .....

Street .....

City ..... Zone ..... State .....

Model TA has *What it Takes* to do TOUGH mixing

DESIGNED FOR EXTRA HEAVY MIXING

AGITATOR PARTS QUICKLY REMOVABLE FOR EASY CLEANING

GROEN
STAINLESS STEEL STEAM JACKETED
TWIN-SHAFT MIXER KETTLE

IT'S A RUGGED, SANITARY UNIT

• Stainless steel from top to bottom. Completely sanitary — conforms to the most rigid Health Dept. requirements. Twin shaft operation for highest efficiency in mixing. Fully enclosed motor drives two shafts: (1)—at slow speed operating Flexible Finger-like scrapers; and (2)—a secondary high-speed shaft equipped with any of a variety of beaters, blenders, or mixers.

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News

The Chicago Section of the American Association of Candy Technologists held their annual election of officers at the February meeting. The new officers to assume office in September are: Chairman, **Milo K. Schroeder;** Program Chairman, **E. A. Siebert;** Treasurer, **Allen Allured;** and Secretary, **Ed. Heinz.**

Lowell T. Tjaden has been appointed vice-president and general manager of **Market Confections, Inc.,** of Los Angeles, California. This firm is a manufacturer and packer of confections under the Champ brand, and exclusive distributors of many well known confections. Mr. Tjaden was formerly associated with E. J. Brach & Sons, and also was a vice president of Chase Candy Company. He recently resigned as national sales manager of S & W Fine Foods, Inc.

Griggs, Cooper & Company has announced plans for an expansion of their **Sweetest Maid Candy Division. Emil Meyer,** superintendent of Thinshell Candies, Inc., for the past 25 years, has been employed by Griggs, Cooper & Company to assist David Baldi, candy superintendent, in the development of new items for Sweetest Maid's "Superfine" candy line, and in the expansion of the Satin Finish Hard Candy Department.

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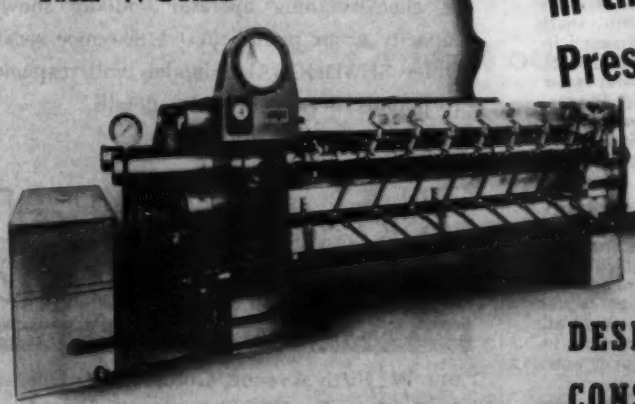

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Heller Candy Company has moved its offices from Paterson, N. J., to New York City. At the time the factory moved from New York City several years ago, the executive and sales offices also moved to Paterson. However, this arrangement proved too inconvenient for buyers, necessitating the present move back to the city. However, the plant and production offices will remain in Paterson.

Walter M. Lowney Company, Limited, has opened new office and warehouse space in Toronto. The modern one-story building on the western outskirts of the city is designed to serve the ever-growing Ontario market. **Donald M. Christie,** the Toronto manager for twenty-four years, has retired, and **C. M. Connell,** who has been with the company for twenty years, has been appointed to succeed him.

White Stokes Company, Inc., of Chicago, has appointed brokers for two territories. **B. E. Loyd & Company** will represent the company in northwest Ohio and Michigan, except for the upper peninsula, with headquarters in Detroit. **A. J. Elggren & Sons Co.,** of Salt Lake City, will cover the states of Utah, Idaho and Wyoming.

Amsco Packaging Machinery, Inc., Miller Wrapping & Sealing Machine Co., and Simplex Packaging Machinery, Inc., will jointly man space at the Packaging Exhibition. Among other equip-

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Blackmer's growth has been earned by the development and manufacture of products backed by 50 years of constant laboratory and field research. These products include industrial bulk pumps, truck pumps, hand pumps, strainers and fluid motors. Blackmer's advanced design, smooth operation, economy, and flexibility of use . . . have been performance proved throughout the last half century. Wherever liquids are handled, Blackmer pumps are known for quality, dependability and record durability. And now, new products soon to be announced promise a new standard of performance. Our engineers can solve your liquid materials handling problems . . . write for details today!

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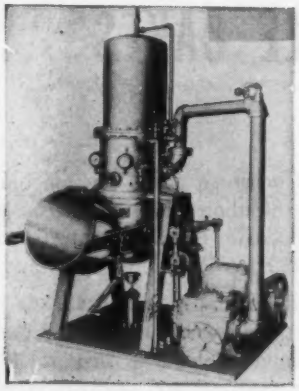
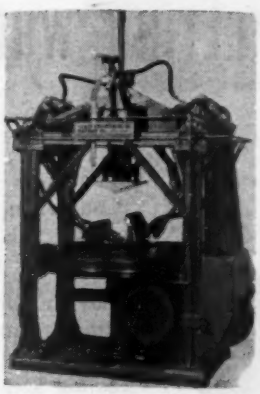
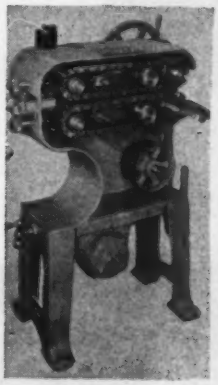
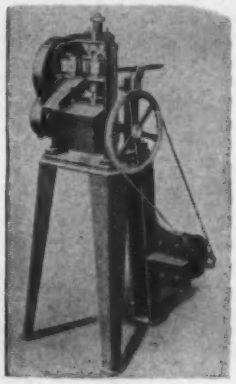
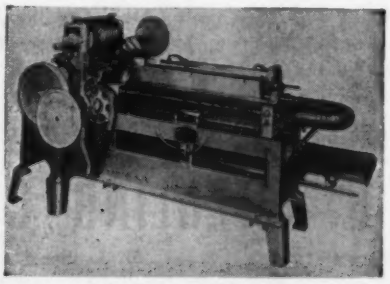
See Yellow pages for your local sales representative


Hohberger
Continuous Hard Candy
Cooker


Berks
Hard Candy
Batch Mixer


Hohberger
Continuous Hard
Candy Cutter


Hohberger
Cut Rock
Cutter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Good Equipment

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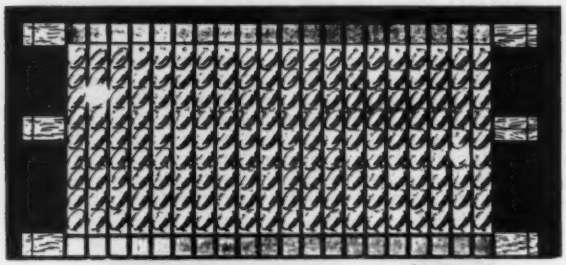
ment, they will show a line packaging pops with a Whiz Packer Net Weigher Filling Machine fed by an Automatic Incline Conveyor, an Amsco Angle Belt Conveyor Table and an Amsco Automatic Rotary Polyethylene Bag Sealing Machine. The sealing machine will be equipped with a newly developed coding attachment for coding and dating polyethylene bags.

Jabez Burns has opened their first branch sales engineering office at Los Altos, California. **Carl Willenborg** has been appointed to head this office, which serves the west coast, southwest, rocky mountain and western Canadian areas.



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Now with a NEW FINISH
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A Molded Fiberglass Tray has been developed for use as a stock box, and is now being used extensively at the Hershey Chocolate Corporation. The tray can be cleaned with hot water or steam, and the material will not rust or warp. Stacking blocks are provided in all four corners, so that trays may be stacked several high without crushing contents. Molded in handles make handling of individual trays easy. For further information write: Molded Fiberglass Tray Company, Linesville, Pa.

Hudson Sharp Machine Company will exhibit several of their Cambell Wrapping Machines at the Packaging Exhibition.

MELTING WHOLE CAKES

Why break up or crush cakes, by machine or hand, when the Stehling Chocolate Mixer melts whole 10 lb. chocolate cakes at up to 5,000 lbs. per hour of 120° chocolate?

You can throw whole cakes into the Stehling without danger of damage to the mechanism, which gives you more time to manipulate the coating and get uniform and original viscosity.

This assures coating the greatest number of centers from each pound of coating.

Save money and labor with a Stehling Chocolate Mixer. There is a size to fit your operation. Write today for details.

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Technical Literature

The Chemical Senses

R. W. Moncrieff, viii plus 538 pages, illustrated with diagrams or drawings, 1951, price 21 shillings.

This very readable treatise is concerned with odor and flavor. To the reviewer, it is a classic.

Logically, the book opens with the role of the chemical senses in life, describes the structure of the sense organs, classifies the sensations, discusses olfaction and gustation, distinguishes between the chemical sense and taste, shows the chemical sensibility in lower animals, offers classifications of odors, links chemical constitution and odor, considers taste and constitution, presents the physical properties of odorous materials, offers a theory of odor, comments on perfumes and essential oils, and gives many illuminating thoughts on flavor and food.

Readers acquainted with E. C. Crocker's "Flavor," (1945) are familiar with the Crocker-Henderson classification of odors, fragrant, acid, burnt, and caprylic. This, and other arrangements, Rimmel's, Zwaardemaker's, and Parry's, are detailed in addition to Henning's Olfactory prism system. Through use of systematic odor classification, flavoring has made forward progress.

In the chapter on Flavor and Food, all too short for the reviewer, this treatise hits its climax. The sensation of flavor comprises taste, odor, texture, temperature and intensity. Without the ability to detect odor, people would find food merely bitter, salty, sour or sweet.

Ample references are given in the text. The book contains a glossary of terms and a good bibliography.

Starch

Charles A. Brautlecht, 408 pages, illustrated, 1953, price $10.00.

Starch, one of the most abundant plant materials, has many industrial uses. Nearly two billion pounds valued at over one hundred million dollars was produced in 1947 in the U. S. Importations for the same year were approximately a million pounds. Thus, economics are stressed.

The physical structure of the various granules of starch is not only detailed but also illustrated by microphotographs. The author, a University of Maine professor (emeritus), quite naturally (Maine produces about 15% of the U. S. potato crop) devotes much space to the growing, handling and processing of white potatoes for starch. These chapters high-light the book. Because of the vast effort expended in the unsuccessful development of a sweet potato starch industry in the U. S., considerable attention is devoted to possible reasons for failure of this venture.

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Cooling Tunnel Belts and Plaques

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- ★ Feed Belts (Endless—Treated or Untreated)
- ★ Packing Table Belting (Treated and Untreated)
- ★ Innerwoven Conveyor Belting
- ★ Batch Roller Belts (Patented)
- ★ Wire Belting
- ★ Vee Belts
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A Coated Fabric— *Not* A Lamination

- ● A smooth bright finish given to bottoms
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AUTOMATIC — continuous rotary motion provides amazing, new, high speed wrapping production — eliminates counter-acting motion that causes material breakage and machine down-time.

"FLOAT" WRAPPING — packages products of regular or irregular shape *without* breakage or crushing whether product is hard, soft, firm or brittle. Size change-overs accomplished with minimum down-time.

POSITIVE SEALING — by heat, glue or crimping keeps moisture where you want it—in or out. Sanitarily protects against dirt, dust and handling. Ends may be flared, folded under or diamond folded — longitudinal seams heat or glue sealed.

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USES ALL MODERN WRAPS — Cellophane, glassine, foils, films, polyethylenes and others. Electric registration accurately positions pre-printed or attached labels.

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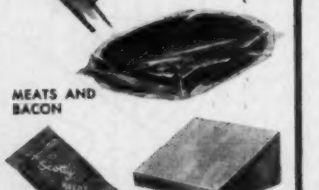
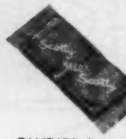
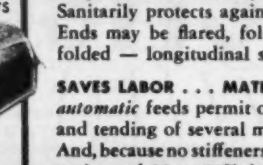
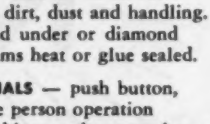

CANDIES & CONFECTIONS

BAKERY PRODUCTS

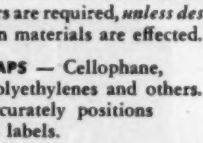

CITRUS FRUITS & VEGETABLES

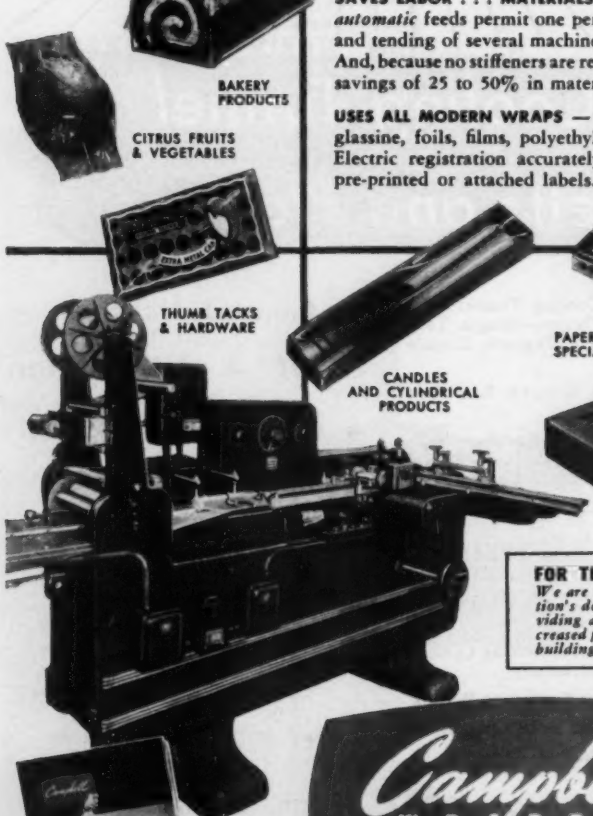
THUMB TACKS & HARDWARE


CANDLES AND CYLINDRICAL PRODUCTS



PAPER SPECIALTIES AND TEXTILES


SOAP AND TOILETRIES



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NEW YORK: 55 WEST 42 STREET

Considering that the amount of corn starch produced in the U. S. is 94% of the total starch production, too little space is devoted by the author to this important starch. Tapioca, wheat and rice starches are accorded adequate treatment. Sago, arrowroot, and other starches are but briefly discussed.

Special Forms and Modified Starches, Applications, Dextrin, and Glucose and Caramel are most interesting chapters giving usages for some items which may be unfamiliar to confectioners. The Analysis of Starch covers the important methods of value to the purchaser. The Characteristics of Starch and Its Derivatives by Dr. Owen A. Moe, concludes this treatise.

A list of references for supplementary reading accompanies each chapter. The book is well edited and will be found valuable as a reference or text.

Pectinate and Pectate Coatings, 1 General Requirements, 2 Applications

J. C. Miers, H. A. Swenson, T. H. Schultz and H. S. Owens, Food Technology, Vol. 7, No. 6 (1953)—Food is coated in a pectic solution and then in a calcium chloride solution and dried. A discussion of factors determining film thickness of the final coating is presented. Specific information is presented on the application of low-methoxyl pectin coatings to almonds, candied diced fruit and soft dates. With the latter products, the coating reduces stickiness and increases the attractiveness.

Waxes in Protective Packaging

L. E. Simerl, Food Technology, Vol. 7, No. 6 (1953),—This is a review of the present status of waxes and additives in food packaging. New developments are discussed.

Reconstitution of Moisture in Popcorn by Steam Blanching

W. P. Bemis and W. A. Huelsen, Food Technology, Vol. 7, No. 6 (1953)—Steam blanching is shown to be a rapid means of re-hydrating overdried popcorn. It increases popping expansion. Blanching time depends upon the initial moisture content. The color of popcorn is improved by blanching.

Effect of Roasting, Blanching and Sorting on the Content of Oil and Free Fatty Acids of Peanuts

N. J. Morris, R. K. Willich and A. F. Freeman, Food Technology, Vol. 7, No. 9 (1953)—Data are presented on the effects of roasting, blanching, and sorting of peanuts and the admixture of stabilizers on the oil and fatty acids contents of peanut butter.

Esters of Citric Acid in Stabilizing Edible Oils

H. W. Vahlteich, C. M. Gooding, C. F. Brown and D. Melnich, Food Technology, Vol. 8, No. 1 (1954)—The stabilization of edible fats and oils with esters of citric acid is reviewed. Esters having two free carboxyl groups are effective metal deactivators. Evaluation of the esters for flavor or stabilization was based on peroxide values and flavor panels.

Powdered Grape Juice

R. K. Eskew, H. L. Sinnamon and V. A. Turkot, Food Technology, Vol. 8, No. 1 (1954)—A description for powdered grape juice and the packaging of the powder is given.

What Makes Flavor Leadership?

L. B. Sjostrom and S. E. Cairncross, Food Technology, Vol. 7, No. 2 (1953)—Studies attempting to determine the role of flavor in single products which are sales leaders. Through the Flavor Profile method, leading products were found to have a mouth-filling flavor, were well-blended and without any uninviting after-taste.

Synthetic Aromatics for Foods

L. Benezet, Amer. Perfumer & Ess. Oil Review, Vol. 62, No. 6 (1953)—Empirical formulas are presented for apple, grape, hazelnut, walnut, prune, apricot, pear, crabapple, currant, gooseberry and coconut flavors.

Flavor of Peanuts and Peanut Products as Affected by Certain Insecticides Used in Growing Peanut Crops

G. L. Gilpin, E. H. Dawson, E. L. Geissenhainer and H. Reynolds, Food Technology, Vol. 7, No. 3 (1953)—Some insecticides cause off-flavors in peanuts, peanut butter and peanut oil. The effects of benzene hexachloide, lindane, aldrin, dieldrin and toxaphene are reported.

Quality Control—Its Significance, Implementation and Practice

M. E. Parker, Food Technology, Vol. 7, No. 4 (1953)—A good general article on the subject, which might well be posted in a prominent place in food plants.

How to Add Sales Value by Color Measurement

F. J. Francis, Food in Canada, Vol. 13, No. 10 (1953)—The color of food products is a powerful factor in influencing sales appeal. Uniformity of color maintains customer confidence. Article explains scientific measurement of color. The Munsell system and spectrophotometric methods are described. A good review paper.

The Karl Fischer Method of Moisture Determination

K. W. Klopp, Food in Canada, Vol. 13, No. 8 (1953)—A review paper describing the principles and advantages of this analytical method.

CANDY EQUIPMENT PREVIEW

Published bi-monthly by

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MARCH 1954

Application of Enzymes to Corn Syrup Production

D. P. Langlois, Food Technology, Vol. 7, No. 8 (1953)—Three products have been made commercially, (1) a 63 D.E. of high sweetening power with no tendency to crystallize, (2) a 55 D.E. of moderate sweetening power and high fermentability, and (3) a 90 D.E. of sweetness approaching dextrose which crystallizes to a solid mass. These new starch hydrolysis products indicate that there is no limit to the combination of properties obtainable through use of these new techniques described.

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For The Candy Industry

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Length—43¾"
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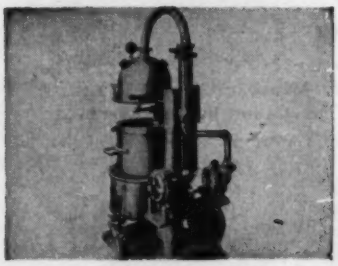
No Steam? This Gas Vacuum Cooker Does The Job

The type G-3 Simplex Gas Vacuum Cooker shown here is well suited to plants not having facilities for steam. Operating on gas, it comes as one complete unit in-



cluding vacuum pump and motor, vacuum gauge, gas fired furnace blower and motor.

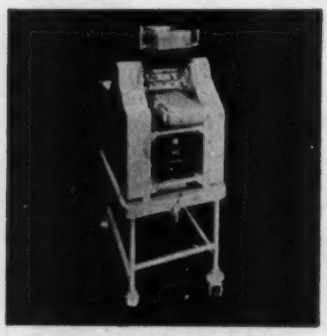
With a cooker capacity of from 25 to 100 pounds per batch, the machine is designed for efficient, economical production of fruit drops, stick candies, lolly pops and other types of hard candies as well as quicker cooling of fondant syrup.

Requiring no mechanical knowledge or skill to operate, it has a production capacity of more than 1,500 pounds of candy in 8 hours with one pre-melting kettle. With 2 or more pre-melting kettles production can be increased to more than 3,000 pounds.

Additional information is available from **Vacuum Candy Machinery Co., 15 Park Row, New York 38, N. Y.**

Depositor Meets Requirements of Any Shop

Newest addition to the Racine Depositor family—the 6" Bantam, is perfect for depositing of any kind, size or shape—creams, mint or chocolate patties, cocoanut kisses,



pralines, mounds or bars, maple moulded creams, gum drops, marshmallow or nougat pieces, chocolate bars, kisses, miniature and large bits, stars, leafs, wafers, nonpareils, etc. Deposits can be made in all types of molds, foil or paper cups, or direct on trays, plaques or belts.

Main drive electric motor and electric water circulating pump operate from any light circuit. No other connection is necessary. For complete details write **Racine Confectioners' Machinery Co., 15 Park Row, New York 38, N. Y.**

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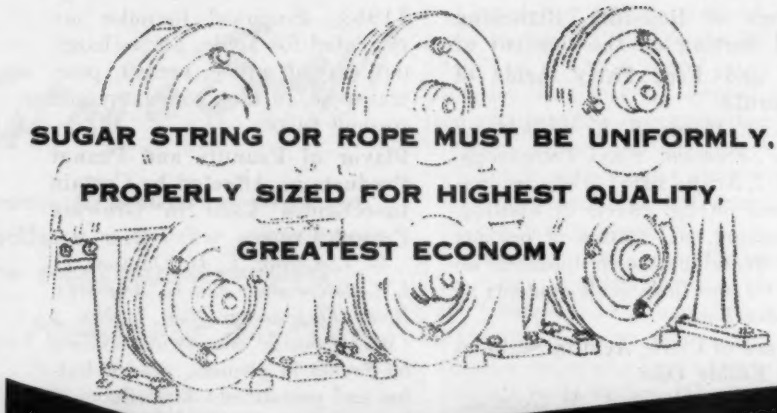

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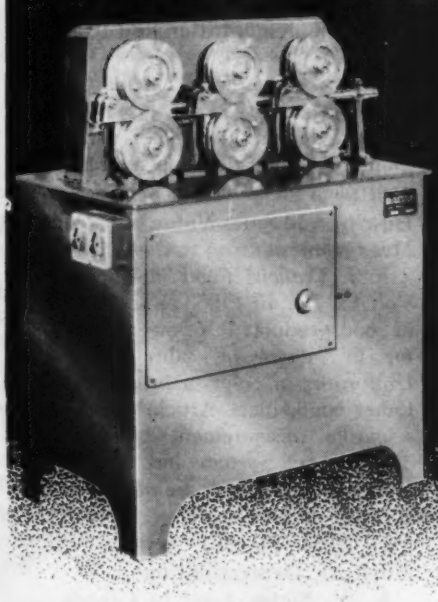

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The MANUFACTURING CONFECTIONER'S

Candy Clinic

The Candy Clinic is conducted by one of the most experienced superintendents in the candy industry. Some samples represent a bona-fide purchase in the retail market. Other samples have been submitted by manufacturers desiring this impartial criticism of their candies, thus availing themselves of this valuable service to our subscribers. Any one of these samples may be yours. This series of frank criticisms on well-known branded candies, together with the practical "prescriptions" of our clinical expert, are exclusive features of The MANUFACTURING CONFECTIONER.

One Pound Assorted Chocolates; up to $1.00

Code 3A4
Assorted Chocolates
1 lb. $1.60

(Purchased in a chain drug store, Chicago, Ill.)

Appearance of Package: Good.
Container: Round tin can, key opener. Can printed in maroon, gold and white.
Appearance of Package on Opening: Good.
Number of Pieces:
Light Coated: 28.
Dark Coated: 16.
Coatings:
Colors: Good.
Gloss:
Light: Good.
Dark: None. Bloomed.
Taste: Good.
Dark Coated Centers:
Vanilla Cream: Fair.
Caramel: Partly grained.
Orange Cream: Good.
Buttercream: Good.
Jelly: Could not identify flavor.
Green Cream and Chocolate Fudge: Lacked flavor.
Jelly and Cream: Lacked flavor.
Coconut Cream: Fair.
Chocolate Cream: Good.
Cream: Could not identify flavor.
Kernel Paste Cream: Good.
Marshmallow: Lacked flavor.
Light Coated Centers:
Molasses Coconut: Fair.
Nut Taffy: Good.
Cream and Caramel: Lacked flavor.
Caramel: Good.
Walnut: Rancid.
Nut Paste: Fair.
Chocolate Cream: Dry.
Caramel and Nougat: Fair.
Orange Colored Cream: Lacked flavor.
Jelly: Could not identify flavor.
Nut Brittle: Had a strong taste.
Green Colored Marshmallow: Lacked flavor.
Cellulose Wrapped Caramels: Good.
Assortment: Good.
Remarks: The price tag on the can was $1.60 but it was being sold as a special at 79c. Chocolates had an old taste, some of the creams were dry and other pieces were grained. Most of the pieces had a rancid taste. A number of flavors are not up to standard.

Code 3C4
Assorted Chocolates
1 lb. 89c

(Purchased in a department store, Chicago, Ill.)

Appearance of Package: Fair.
Box: Two layer type, full telescope. White glazed paper top printed in black. Cellulose wrapper.
Appearance of Box on Opening: Bad.
Number of Pieces:
Light Coated: 18.
Dark Coated: 11.
Coatings:
Colors: Good.
Gloss: Poor.
Strings: None.
Taste: Fair.
Dark Coated Centers:
Vanilla Cream: Good.
Lemon Cream: Good.
Cream: Could not identify flavor.
Peppermint Cream: Good.
Light Coated Centers:
Nougat: Fair.
Chocolate Cream: Good.
Nut Cream: Could not identify flavor.
Vanilla Caramel: Partly grained.
Strawberry Cream: Good.
Dark Cream: Could not identify flavor.
Assortment: Entirely too small for a one pound assortment.

Candy Clinic Schedule For The Year

The monthly schedule of the CANDY CLINIC is listed below. When submitting items, send duplicate samples six weeks previous to the month scheduled.

JANUARY—Holiday Packages; Hard Candies
FEBRUARY—Chewy Candies; Caramels; Brittles
MARCH—One-Pound Boxes Assorted Chocolates up to $1.00
APRIL—$1.00 and up Chocolates; Solid Chocolate Bars
MAY—Easter Candies and Packages; Moulded Goods
JUNE—Marshmallows; Fudge
JULY—Gums; Jellies; Undipped Bars
AUGUST—Summer Candies and Packages
SEPTEMBER—Bar Goods; 5c Numbers
OCTOBER—Salted Nuts; 10c-15c-25c Packages
NOVEMBER—Cordial Cherries; Panned Goods; 1c Pieces
DECEMBER—Best Packages and Items of Each Type Considered During Year; Special Packages; New Packages

Remarks: Cream centers were well made but the flavors were below the standard used in this priced chocolates. Box and chocolates are not up to the 89c standard. Very poor dipping and dull finish.

Code 3B4
Assorted Chocolates
1 lb. 89c

(Purchased in a department store, Chicago, Ill.)

Appearance of Package: Good.
Box: One layer type, white glazed paper top, name, etc. embossed in gold. Cellulose wrapper.
Appearance of Box on Opening: Good.
Number of Pieces:
Light Coated: 12.
Dark Coated: 12.
Bon Bons: 4.
Unwrapped Caramel: 1.
Unwrapped Coconut Paste: 1.

Coatings:
Colors: Good.
Gloss: Good.
Strings: Good.
Taste: Good for this priced candy.

Dark Coated Centers:
Vanilla Cream: Good.
Lemon Jelly: Good.
Cream: Could not identify flavor.
Cream: Could not identify flavor.
Pink Cream: Could not identify flavor.
Molasses Chew: Fair.
Vanilla Cream and Caramel: Good.
Chocolate Cream: Good.

Light Coated Centers:
Pink Jelly: Could not identify flavor.
Orange Cream: Flavor too weak.
Maple Cream: Good.
Vanilla Caramel: Good.
Chocolate Nut Cream: Good.
Chocolate Cream: Good.
Ting Ling: Good.
Raisin Caramel Unwrapped: Good.
Coconut Paste Unwrapped: Good.
Bon Bons: Good.
Assortment: Fair.
Remarks: A few too many creams for a one pound selection. Suggest the flavors be checked as some are not up to standard.

Code 3F4
Assorted Chocolates
1 lb. $1.01

(Purchased in a fruit store, Philadelphia, Pa.)

Appearance of Package: Good.
Box: One layer type, square. Top printed in red, gold, green and white. Tied with a red and white printed grass ribbon. White paper wrapper, overall print of name, etc. in red.
Appearance of Box on Opening: Bad.
Coating: Dark:
Color: Good.
Gloss: Good.
Strings: Fair.
Taste: Good.
Number of Pieces: 30.
Centers:
Chocolate Creams: Good.
Vanilla Buttercreams: Good.
Assortment: See remarks.
Remarks: Box opened up poorly as 13 pieces were broken. Suggest at least six more flavors be added to improve the assortment. We feel the consumer would be disappointed to find only two flavors in a one pound box of chocolates.

Code 3G4
Assorted Chocolates
1 lb. 79c

(Purchased in a chain drug store, Chicago, Ill.)

Appearance of Package: Good.
Box: Two layer type, full telescope. Brown paper top. Name printed in dark brown. Cellulose wrapper.
Appearance of Box on Opening: Good.
Number of Pieces: 21 dark coated.

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Coating:
Color: Good.
Gloss: Good.
Strings: Good.
Taste: Good.
Centers:
Black Walnut Cream: Good.
Cream: Could not identify flavor.
Pink Cream: Could not identify flavor.
Green Colored Cream: Could not identify flavor.
Chocolate Cream: Good.
Vanilla Cream: Good.
Orange Cream: Good.
Bitter Almond Flavored Cream: Good.
Coconut Cream: Good.

Assortment: Good .

Remarks: Well made cream centers and good coating for this priced chocolate. Suggest some of the flavors be checked as they are not up to standard. The Food and Drug Administration would consider this package deceptive as there were 14 pieces on the top layer and only seven on the bottom layer.

Code 3J4
Assorted Milk Chocolates
1 lb. 59c

(Purchased in a chain drug store, Chicago, Ill.)

Appearance of Package: Good for this priced chocolates.
Box: Two layer type, full telescope. Printed in dark brown, white and gold.
Appearance of Box on Opening: Good.
Number of Pieces: 27. 1 Foiled piece.
Coating: Milk:
Color: Good.
Strings: Machine. Good.
Gloss: Good.
Taste: Good.
Centers:
Nut Nougat: Good.
Maple Cream: Good.
Pink Cream: Could not identify flavor.
Orange Cream: Not a good orange flavor.
Lemon Cream: Not a good lemon flavor.
Vanilla Cream: Good.
Grape Jelly: Good.
Vanilla Caramel: Tough.
Chocolate Cream: Had a scrap taste.
Green Mint Cream: Good.
Peppermint Cream: Good.

Assortment: Fair.

Remarks: The best box of chocolates at this price we have examined this year. We cannot expect too much in quality of centers at this price.

Code 3K4
Assorted Fudge
1 lb. 80c

(Sent in for analysis #4765)

Container: Folding box, white, printed in green. Fudge in wax paper wrappings.

CARAMELS

LOZENGES

ICINGS

NOUGATS

TOFFEES

OPERA CREAMS

NONPAREILS

FUDGES

ORANGE SLICES

OLD FASHIONED TAFFY

DIVINITIES

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Confections

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Chocolate Nut Fudge:
Color: Good.
Texture: Good.
Taste: Good.
Vanilla Nut Fudge:
Color: Good.
Texture: Good.
Taste: Good.
Remarks: The best fudge of this kind we have examined in some time. Well made fudge, good eating. Should be a good seller at 80c the pound.

Code 3H4
Assorted Chocolates
1 lb. 79c

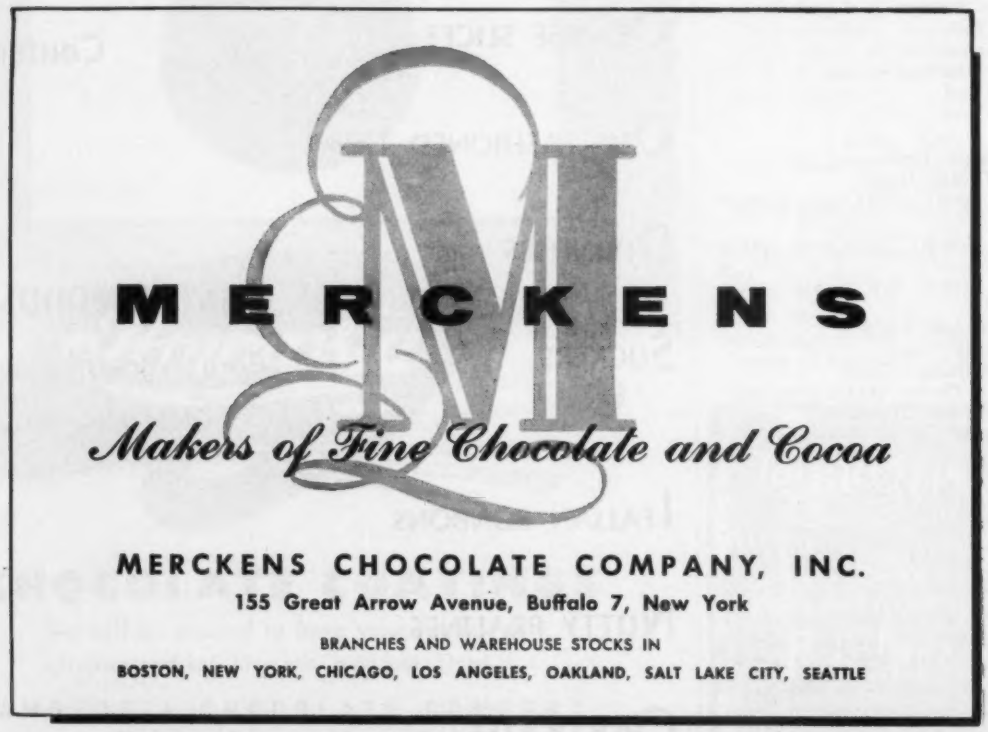
(Purchased in a chain drug store, Chicago, Ill.)

Appearance of Package: Good.
Box: Two layer type, full telescope. White glazed paper printed in blue. Imprint of school house, boat, Grandfather clock and house in colors. Cellulose wrapper. Neat and attractive top.
Appearance of Box on Opening: Good.
Number of Pieces: 34.
Foiled: 3.
Cellulose Wrapped Caramels: 2.
Jordan Almond: 2.
Coating: Dark:
Color: Good.
Gloss: Fair.
Strings: Fair.
Taste: Good for this priced chocolates.
Centers:
Pink Cream: Could not identify flavor.
Lemon Cream: Lemon flavor had slightly "off" taste.
Nougat: Good.
Peppermint Cream: Good.
Taffy: Fair.
Chocolate Cream: Had a scrap taste.
Caramel: Partly grained.
Vanilla Cream: Good.
Orange Cream: Good.
Dark Colored Cream: Could not identify flavor.
Brazil: Good.
Peppermint Cream: Good.
Maple Cream: Poor flavor.
Nut Taffy: Good.
Jelly: Could not identify flavor.
Wrapped Caramels: Very hard and tough.
Jordan Almond: Good.
Assortment: Fair.
Remarks: These chocolates are not up to the standard of other chocolates we have examined at 79c the pound.

Code 3D4
Asorted Chocolates
1 lb. $1.11

(Purchased in a Department Store, Philadelphia, Pa.)

Appearance of Package: Fair.
Box: One layer type, white glazed paper top printed in pink and lavender. Tied with a printed white grass ribbon.
Appearance of Box on Opening: Bad.
Number of Pieces:
Light Coated: 11.
Dark Coated: 19.
Light Coated Pretzel: 1.
Coatings:
Colors: Good.
Gloss: Fair.
Strings: None.
Taste: Good.
Light Coated Centers:
Marshmallow: Good.
Coconut Ting Ling: Good.
Partly Coated Marshmallow: Tough and dry.
Peppermint Wafers: Poor cream center, flavor good.
Pretzel: Good.
Dark Coated Centers:
Buttercreams: Good.
Marshmallow: Good.
Coconut Ting Ling: Good.
Peppermint Wafers: Good.
Assortment: Too small for a one pound selection of chocolates.
Remarks: Box opened up poorly. A number of pieces were broken and some of the wafers were stuck together. The box is too large for one pound. Suggest cups be used, also a cellulose wrapper as top of box was soiled. Highly priced at $1.11 for one pound.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Manufacturing Methods and Formulas for

Fudge

Walter Richmond, the author of this article, is plant superintendent at the Norris Candy Company, Atlanta, Ga. He is well known to this industry through his book, "Candy Production Methods and Formulas," published by The Manufacturing Confectioner Publishing Company. This article is a chapter from Mr. Richmond's new book, to be published next spring. This will be primarily made up of formulas and methods for the manufacture of high grade confections, such as are produced by retail confectioners and high grade wholesale package goods houses.

A fudge of good quality should have a pleasing milky flavor and a fine grain texture. Fudge depends mostly on its milk or cream content for flavor. Milk or cream also have a direct bearing on the texture of the finished product. It is advisable to become familiar with the different types of milk and cream, as outlined in chapter 1 on the section devoted to milk products.

There are factors, other than milk, that control the quality and texture of fudge. The amount, if any, of fondant used; the temperature of the batch when it is cooked; the temperature of the batch when it is stirred or when the fondant is added to it.

The type of milk product to use will also depend upon the type of cooking equipment available.

Grain Texture

The grain texture can be formed by the addition of fondant or can be developed by stirring the batch. A formula, properly balanced as to amounts of sugar, corn syrup, milk solids and fondant, and with correct handling methods, will usually have a closely knit, soft grain texture. Fudges that depend on stirring to develop the grain, have a short breaking and a tender texture. The shelf life of a fudge depends, to a large extent on the texture of the grain as well as to the amount of milk solids and fats it contains.

The size of the grain depends more on the method of handling the batch than it does upon the amount of sugar contained in the batch. *Heat,* is by far, the most *frequent cause* of a *coarse grain* in fudge. The fondant can be stirred or creamed up while it is too hot and it will become grainy. If that fondant is used in fudge it will impart that coarse grain to the fudge batch. A *coarse grain* will develop if the batch is stirred while it is too hot. The size of the sugar crystals that form, when sugar is cooked and then re-crystallized, will be large and coarse if developed when the temperature of the mass is high. By that same token, if a mass containing sufficient quantities of sugar to form crystals, is agitated at a low temperature the sugar crystals (grain) will be of a finer size. Stirring the batch while it is too hot will also cause clusters of sugar crystals to form into a mass and give the fudge a spotty appearance. Pouring a batch of fudge, high in sugar content, on a cold slab will force the heat to the top of the batch too quickly and this will cause grain clusters to form. A coarse grain can also form if the batch is not stirred to a creamy texture before pouring it on the slab.

The grain texture of a fudge, that does not contain fondant, will be soft and fine, if the cooked batch is cooled sufficiently before starting to stir the batch.

(Continued on Page 52)

Helpful Books for Candy Plant Executives

Profits Through Cost Control for Manufacturing Confectioners

by Frank Buese and Eric Weissenburger

This booklet is a compilation of five articles which appeared in The Manufacturing Confectioner during the last two years. This material deals with the problems of cost control in candy plants, including planning for profit, controlling material costs, labor costs, distribution costs and overhead costs. The emphasis is on planning operations so that a profit will be made, and in detecting those factors which will adversely affect profit before they can seriously cut the planned profit.

A Textbook on Candy Making

by Alfred E. Leighton

Here is a textbook where the reader can learn the basic fundamentals of candy making, the "how" and "why" of the various operations in non-technical terms. Particular attention is given to the function of raw materials, and why each is included in a formula.

How to Salvage Scrap Candy

by Wesley H. Childs

This booklet is a complete revision of the author's work "Modern Methods of Candy Scrap Recovery" published in 1943. A considerable amount of information has been collected since that time on methods and techniques of salvaging scrap candy. This booklet covers all types of candy, and gives many practical and economical ways of converting scrap candy into a useful form for re-use.

Candy Production Methods and Formulas

by Walter Richmond

This is a big 640 page book designed to give practical information on (1) ingredients and cooking action, (2) mixing, coating, etc., (3) trouble shooting. Over 500 formulas are given, with the methods of processing, and their reasons why.

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This is by far the most complete and authoritative directory of candy brokers ever published, and has found instant acceptance by both brokers and manufacturers. Be sure that a copy of this valuable directory is in your office.

Order Today

(Continued from Page 49)

These fudges, that do not contain fondant, can be stirred by hand or for the large batches, a frame work can be made to set along the sides of a Hobart Type beater. The ring that holds the mixing bowl is removed and a frame work placed on each side of the beater. Rest the handles of the kettle on these frame works, place a four wing beater in place and beat the batch until the desired consistency is reached.

A rough texture, other than that caused by a coarse grain, can develop by using unsweetened evaporated milk. Unsweetened evaporated milk will curdle if added too quickly to a batch. Adding a stabilizer to the milk will help overcome the curdling of the milk.

Fondant

It is the mixing of the fondant with the syrup, in fudges that contain fondant, that starts the grain which gives fudge its creamy texture. The batch should be stirred until the fondant is incorporated into the batch and a good creamy body formed. The fondant should be one that will be incorporated into the batch easily. The fondant should be cooked to a temperature high enough so that it will not be melted by the syrup batch. However it should not be cooked to such a high degree that it will be hard to dissolve in the batch. The fondant should be added to the syrup portion of the batch after the syrup has somewhat cooled. It should be used in sufficient quantities to form a good grain to the batch but, if too much fondant is used the percentage of milk solids, in the syrup portion of the batch, will be decreased and the fudge will lack sufficient milk flavor.

Egg Frappe is often used in some fudges and cream squares to give the goods some fluffiness and to improve the flavor.

Salt is added to most fudges to enhance the milk flavor.

Gumminess will result if; too much sugar is inverted by prolonged cooking; too large a percentage of corn syrup is used in the batch; if a batch low in sugar content is poured on an overchilled slab; or if the work room is too cold.

A *dark color* will develop if the batch is cooked too slowly; especially if it is high in milk content. A fudge with a high percentage of milk should be cooked quickly or the milk added to the batch, in small quantities, at frequent intervals. When making a large batch of fudge the cooked syrup should be divided into two or more pots so that it will cool quickly. Slow cooling will also cause the milk to become dark.

Brown Specks will appear in the fudge if the milk is scorched in the cooking process. The batch should be stirred at all times during the cooking process and as the batch thickens the heat of the kettle should be lowered. Sweetened condensed milk scorches very easily, if cooked on an open fire, and should be cooked by steam, if possible. If a formula calls for the use of sweetened condensed milk and only an open fire is available, it is better to substitute cream or evaporated milk and make up the difference in sugar content of the batch, by adding the amount of sugar, contained in the specified amount of condensed milk, to the batch. All sweetened condensed milks contain approximately 42 to 43 per cent sugar. If a batch calls for the use of 20 pounds of sweetened condensed milk, the sugar content of the milk can be obtained, to a close enough degree for our purpose, by multiplying the amount of milk called for by 42%. Example 20 pounds sweetened condensed milk

x42% sugar

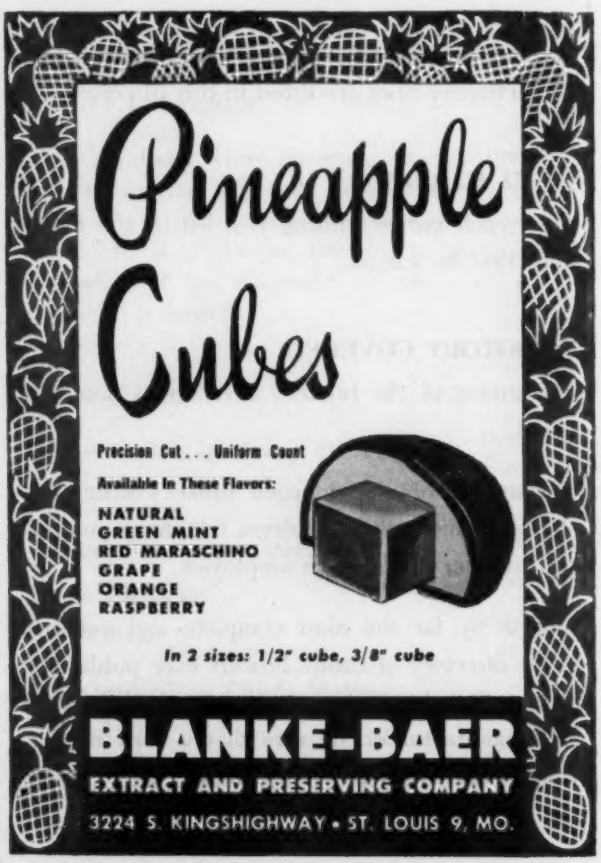
8.40% sugar

If we add 8½ pounds of sugar to the batch we will still keep our formula in balance, in so far as sugar is concerned.

As to the amount of unsweetened milk or cream to use: A gallon of sweetened milk weighs approximately 11 pounds. A gallon of unsweetened milk or cream weighs approximately 8½ to 9 pounds. If we replace the 10 pounds of sweetened milk with one gallon of unsweetened milk or cream, a satisfactory substitution is obtained.

Pouring, Spreading, Cutting

The fudge can be poured on marble or slate slabs, iron slabs (do not turn on water) or wooden tables. The tables should first be lined with plain kraft paper and then a lining of oiled paper placed on top of the plain paper. If the oiled paper were placed next to the wooden surface of the table, the table would absorb some of the oil that is released from the paper when the hot batch is poured on the table.



When the batch cools the oil also cools and it would be difficult to remove the paper from the table. The placing of a plain paper next to the surface of the table, prevents the oiled paper from sticking to the table. Sprinkling a small amount of fine sugar or corn syrup (dextrose) on the surface of slabs will answer the same purpose and the oiled paper will leave the slab more freely.

The poured batch should remain on table or slab until a firm body has formed. It can then be cut with a damp knife or dampened roller cutter knives. The knives must be dampened between each cutting or the fudge will cling to the knives. If the cutting is done before a firm body is formed, the action of cutting the fudge will break the set of the fudge. If the fudge is too firm before it is cut the cut edges of the top surface will be crumbly. Only by experimenting, will you be able to know just when to cut the fudge. After the fudge is cut to the length desired, which is usually about 1/3 of the depth of the candy, it can be cut into strips about 12 inches wide before removing it from the table or slab. This size piece of fudge is easily turned over and the paper removed.

Other type fudges, such as the so-called Board Walk or Sea Shore fudges are poured into tin baking pans, that have been well oiled with mineral oil or slab dressing. They are usually cut to desired size, with a damp butcher knife at the time they are sold.

Formula # 102

OLD FASHIONED CREAM SQUARES # 1
ASSORTED FLAVORS

Small Batch	Ingredients	Large Batch
14 lbs.	Sugar	56 lbs.
5 lbs.	Corn Syrup	20 lbs.
1½ lbs.	Fondant (80% sugar, corn syrup 20%. Cook 244 degrees)	6 lbs.
1½ lbs.	Egg Frappe # 1 Flavor (see below)	6 lbs.
½ oz.	Salt	2 ozs.
3 pts.	Water	1½ gals.

PROCEDURE. Place sugar, corn syrup and water in kettle. Cook to 244-246 degrees Fahr. Set kettle off of fire and add fondant. Mix well and add egg frappe, salt and flavor. Stir until batch shows a good creamy texture. Pour onto well oiled cooling slab or onto oiled paper lined slab. When batch has set (but not too firmly) cut with wet knife, as deeply as possible, into pieces about 1 inch square.

REMARKS. These old time squares have grainy texture. Due to the fact that most of grain formed in this candy is developed by stirring the batch, the finished product has somewhat of a sparkle to it. The small amount of fondant contained in the batch acts as a starting seed for the grain developed by stirring. The fondant could be omitted but a longer stirring time would be required to develop the correct grain of the batch.

Usually the cream squares contain roasted peanuts or thread coconut.

Note. These squares are usually made in vanilla, strawberry (pink) and chocolate flavors. For the chocolate batch add 6 pounds of liquor to the large batch after the batch is cooked. For the small batch add 1½ pounds liquor chocolate.

The squares are often used as a part of a Christmas mix containing cream squares, gum drops, chocolate drops crystallized or sugar sanded coconut blocks, bon bons and other uncoated counter goods.

Formula # 103

NUT CREAM SQUARES # 2
VANILLA AND CHOCOLATE
Vanilla Batch

Small Batch	Ingredients	Large Batch
10 lbs.	Sugar	40 lbs.
2½ lbs.	Corn syrup	10 lbs.
1 lb.	Plastic Vegetable Butter 92°	4 lbs.
4½ lbs.	Fondant (80% sugar, 20% corn syrup. Cook 242 degrees.)	18 lbs.
3 lbs.	Egg frappe # 2	12 lbs.
4 lbs.	Nuts	16 lbs.
1 oz.	Vanilla Flavor	4 ozs.
½ oz.	Salt	2 ozs.
2 qts.	Water	2 gals.

PROCEDURE. Place sugar, corn syrup, plastic butter and water in cooking kettle. Cook to 244 degrees Fahr. Set kettle off of fire and add fondant, salt and flavor. Mix until batch shows a good creamy body. Add egg frappe. Mix and add nuts. Pour onto oiled paper lined slab. When batch has set up (about 2 hours) cut into squares with wet knife or mark about 1/3 of the way through the batch with wet circular knives. Let remain on slab overnight. Cut into strips. Turn strips over and remove paper. Pack into stock boxes with wax paper between the layers. Break blocks apart as sold.

REMARKS. This formula produces a cream square with a much smoother grain than the squares produced with the preceding formula.

Peanuts, pecans, walnuts or coconut can be added to the batch.

Chocolate Batch

9½ lbs.	Sugar	38 lbs.
2¼ lbs.	Corn syrup	9 lbs.
12 ozs.	Plastic Vegetable Butter 92°	3 lbs.
1 lb.	Liquor chocolate	4 lbs.
4½ lbs.	Fondant	18 lbs.
3 lbs.	Egg Frappe	12 lbs.
1 oz.	Vanilla flavor	4 ozs.
½ oz.	Salt	2 ozs.
4 lbs.	Nuts	16 lbs.

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PROCEDURE. Proceed as with vanilla batch but add melted liquor chocolate to the batch, after the batch is cooked.

A cream square with an excellent eating quality can be obtained by omitting the plastic butter and cooking the batch one degree higher. Add 8 pounds of creamed coconut (see chapter 1 creamed coconut) to the *large* vanilla or chocolate batch, after the batch is cooked. For the *small batch* add 2 pounds of creamed coconut.

The combination of creamed coconut and other nut meats gives the piece a very fine flavor.

Formula # 104

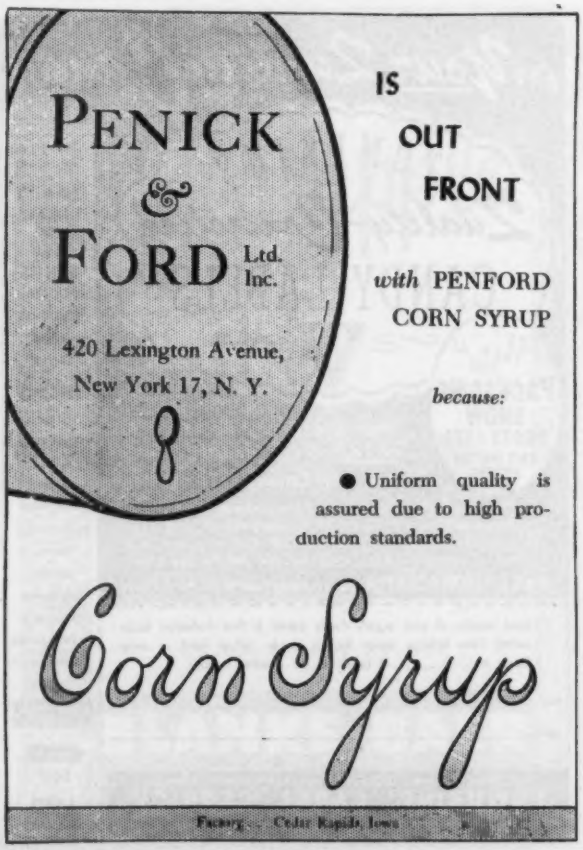
BALTIMORE HOME MADE CARAMELS CHOCOLATE CREAM SQUARES

These so called caramels are really a type of short home made fudge. Originally they were made in homes and sold to the retail stores. They became so popular that some of the smaller factories started manufacturing them. They were made in small batches and poured into greased pans about 8 x 11 x ½ inch deep. Daily deliveries were made to the stores and the empty pans collected and refilled. Below are two formulas: one for the smaller batch of caramels and the other for larger batches.

Small Batch—Enough for 1 pan

1¾ lbs.	Fine granulated sugar
4 ozs.	Corn syrup
2 ozs.	Cocoa powder
1 pt.	Fresh milk

Cook to 235 degrees. Add a pinch of salt, 1 tablespoon fresh butter and vanilla flavor to suit requirements. Cool to blood heat. Stir until creamy. Pour into greased pans. When batch has set up and still retains some heat, mark as follows: Drive very small nails (brads) into two strips of wood. Space the nails on one strip of wood so that it will mark 12 caramels when drawn lengthwise across the pan. Space nails on the other strip of wood so that it will mark 12 caramels when drawn across the pan.



Large Batch

Fondant

48 lbs.	Sugar
12 lbs.	Corn syrup
3 qts.	16% or 20% fresh cream mixed with
3 pts.	Unsweetened evaporated milk
3 lbs.	Cocoa Powder
9 lbs.	Melted liquor chocolate

Cook to 238 degrees Fahr. Add:

3 lbs.	Fresh Dairy Butter

Cook to 240 degrees.

Pour onto slab or plow type cream beater that has been lightly sprinkled with water. Sprinkle top of batch lightly with water. Cream up the batch when it is nearly cold. Allow batch to sweat back. Place in remelt kettle. Remelt slightly and add

Bob

12 lbs.	Sugar
3 lbs.	Corn syrup
	Water to dissolve

Cook to 236 degrees. Add

6 ozs.	Vanilla flavor

Proceed as with small batch. Pour equal amounts of remelted batch in each pan.

REMARKS. The above formula produces a much smoother piece of goods than the caramels made by using the one pan formula. Smaller batches of the second formula can be made by taking ¼ of the ingredients called for in the large batch. The fondant portion of the batch can be made on a cream slab if no small cream beater is available.

Nut meats of any kind and in any quantity can be added to the batch to give it further taste appeal. If nut meats are added to the batch, the marking of the batch will have to be done with a dampened sharp knife. Cut caramels to about 1/3 of their depth, so that nut meats will break as the cream squares are broken apart.

Formula # 105

PENOCHE SQUARES

Small Batch	Ingredients	Large Batch
15 lbs.	Yellow C sugar # 9 or 10	90 lbs.
1½ lbs.	Corn syrup	9 lbs.
½ gal.	Fresh Milk	3 gals.
½ lb.	Dairy Butter	3 lbs.

PROCEDURE. Place sugar and one-half of the milk in cooking kettle. Dissolve the sugar slowly so that all lumps will be dissolved. Add corn syrup and start cooking the batch. When batch becomes somewhat thick, add the remainder of the milk and cook to 237 degrees Fahr. Add the butter and cook to 238 degrees. Set off of fire. Cool to about 110 to 120 degrees. Stir batch until it becomes creamy. Pour into oiled pans or on oiled paper lined slab. When batch is firm, mark to desired size squares with a damp knife. Remove from pans or slab and pack into stock boxes until ready to sell.

REMARKS. This candy has a texture somewhat similar to Baltimore Caramels. The use of yellow C sugar gives the candy a distinctive flavor. Pignolia nuts are often added to the batch.

A penoche fudge with a very pleasing flavor can be obtained by cooking the batch one degree higher and adding 5 pounds of creamed coconut to the *large batch* after it is cooked or 12 ounces creamed coconut to the *small batch*. Pouring the cooked batch into a cold kettle will speed up the cooling time.

Formula # 106

HOME MADE STYLE FUDGE MADE WITH FRESH MILK OR CREAM

Vanilla Walnut

Small Batch	Ingredients	Large Batch
11 lbs.	Medium granulated sugar	44 lbs.
3½ lbs.	Corn syrup	14 lbs.
½ gal.	Fresh milk or 20% fresh Cream	2 gals.
1½ lbs.	Plastic Vegetable Butter 92°	6 lbs.

3½ lbs.	Fondant (80% sugar, 20% corn syrup. Cook 242-244 degrees)	14 lbs.
1¾ lbs.	Egg Frappe # 2	7 lbs.
1 oz.	Salt	4 ozs.
1 oz.	Vanilla Flavor	4 ozs.
Sufficient	English Walnut Pieces	Sufficient

PROCEDURE. Place sugar, corn syrup and milk or cream in cooking kettle. Bring to good boil and when batch is about one-half cooked add the plastic butter. Cook to 242 degrees. Set off of fire and add salt, flavor and fondant. When fondant is mixed in the batch add frappe. Stir until batch is creamy. Pour onto oiled paper lined table or slab. Sprinkle walnut pieces on top of spread batch. With a rolling pin, or by patting with the bottom of a candy pan, imbed the nuts into the fudge. When batch has set up, mark to desired size with wet knife. Next morning cut into strips, remove paper and pack into stock boxes.

Maple Pecan

Small Batch	Ingredients	Large Batch
9½ lbs.	White sugar	38 lbs.
1½ lbs.	Yellow C sugar # 9 or 10	6 lbs.
3½ lbs.	Corn syrup	14 lbs.
½ gal.	Fresh milk or 20% cream	2 gals.
1½ lbs.	Plastic Vegetable Butter 92°	6 lbs.
3½ lbs.	Fondant	14 lbs.
1¾ lbs.	Egg Frappe # 2	7 lbs.
1 oz.	Salt	4 ozs.
¼ oz. (2 drams)	Vanilla Flavor	1 oz.
¼ oz.	Maple Flavor	1 oz.
Sufficient	Pecan pieces	Sufficient

PROCEDURE. Same as vanilla but yellow C sugar should soften with a small amount of water, so that all lumps will dissolve, before adding the white sugar.

Chocolate Pecan

Small Batch	Ingredients	Large Batch
11 lbs.	White sugar	44 lbs.
3½ lbs.	Corn syrup	14 lbs.
½ gal.	Fresh milk or 20% cream	2 gals.
½ lb.	Plastic Vegetable Butter 92°	2 lbs.
3½ lbs.	Fondant	14 lbs.
1½ lbs.	Egg frappe # 2	6 lbs.
1¼ lbs.	Liquor chocolate	5 lbs.
1 oz.	Salt	4 ozs.
1 oz.	Vanilla flavor	4 ozs.
Sufficient	Pecan pieces	Sufficient

PROCEDURE. Same as vanilla but batch should be cooked to 238 degrees. Add melted liquor chocolate and re-cook to 238 degrees.

REMARKS. These formulas produce a fudge similar in texture to home made fudges. When marking the fudge, cut about one-half way through the batch. To prevent oiled paper from sticking to slab or table, the slab or table can first be lined with Kraft paper and the oiled paper put on top of it.

These formulas make good week-end specials or can be cut to desired size, wrapped in moisture proof cellulose paper and sold as 5c or 10c bars.

A cheaper coconut fudge for week-end specials can be made with the following formula. The fudge has the same creamy texture but not the eating quality as the fudges produced with the above formulas.

Use the above proportions of sugar, corn syrup, egg frappe, salt, fondant, and flavor. Replace fresh milk or cream with fresh *skim* milk. Reduce the amount of plastic vegetable butter in the *large* vanilla and *maple* batches to 1½ pounds. Omit nut meats but add 5 pounds of medium shred coconut or fancy shred coconut to the batch. Omit the vegetable butter in the chocolate batch.

For the *small batch* reduce the amount of vegetable butter in the vanilla and maple batches to 6 ounces. Omit vegetable butter in chocolate batch. Add 1¼ pounds coconut. Replace fresh milk or cream with *skim* milk.

The chocolate batches can contain the same amount of liquor chocolate used in preceding chocolate batch.

Formula # 107

CREAMY FRUIT & NUT BLOCKS VANILLA AND CHOCOLATE

Vanilla Batch

Small Batch	Ingredients	Large Batch
6 lbs.	Medium granulated sugar	36 lbs.
2 lbs. 11 ozs.	Corn syrup	16 lbs.
5 lbs.	Fondant (80% sugar, 20% corn syrup. Cook 242-244 degrees)	30 lbs.
5 ozs.	Invert sugar	2 lbs.
1 lb. 5 ozs.	Egg Frappe # 2	8 lbs.
1 lb.	Plastic Vegetable Butter 92°	6 lbs.
1 lb. 10 ozs.	Assorted Fruits	10 lbs.
1 lb.	Assorted Nuts	6 lbs.
10 ozs.	Chip coconut	4 lbs.
½ oz.	Salt	4 ozs.
½ oz.	Vanilla flavor	4 ozs.

PROCEDURE. Place sugar, corn syrup, plastic vegetable butter and sufficient water, to dissolve the sugar, in cooking kettle. Cook to 244-245 degrees. Set off of fire and add invert sugar, salt, vanilla flavor and fondant. When fondant is mixed in the batch add the frappe. Mix well into the batch and add the fruits, which can be equally divided between figs and dates (cut to medium size pieces). Mix fruit in batch and add nuts, which can be roasted peanuts, almonds, cashews, etc. In fact any assortment of broken salted or unsalted nuts that still retain their freshness can be used. Now add the chip coconut and stir well into the batch.

Pour batch into candy trays (about 1½ inches deep) that have been lined with *heavy* wax paper. Allow to remain in trays over night. Next day cut into strips about 1½ inches wide, using a banana knife and cutting all the way through the candy. Then turn tray over and place candy on clean table or slab. Remove paper and break blocks apart. The strips can then be cut into blocks about ¾ inch wide. When packed into stock boxes and laid on their sides, you will have a block 1½ inches square and ¾ inch thick. This method of cutting will allow the fruit and nuts to appear on the top surface of the candy.

REMARKS. Other variations on the basic formula will give different types of candy by cooking crushed pineapple or crushed raspberries in the batch and omitting the fruits and nuts and stiffening the batch with long thread or fancy shred coconut. When using fruits in the batch the sugar for the *large batch* should be increased to 42 pounds, and the corn syrup reduced to 10 pounds. For the *small batch* increase the sugar to 7 pounds and reduce the corn syrup to 1 pound 10 ounces.

Color the pineapple batch a pale yellow and the raspberry batch a pale pink color. Sufficient pineapple or raspberry flavor will have to be added to the batch to flavor it correctly.

Chocolate Batch

Proceed as with vanilla batch but omit plastic butter. When batch is cooked to 244 degrees add 6 pounds of melted liquor chocolate to the *large batch* and re-cook to 244-245 degrees.

For the *small batch* omit plastic butter and add 1½ pounds liquor chocolate.

REMARKS. For the chocolate batch the dates can be omitted and replaced with seedless raisins if so desired.

Formula # 108

FILBERT CREAMY HASH

Small Batch	Ingredients	Large Batch
6½ lbs.	Fine granulated sugar	26 lbs.
1¼ lbs.	Yellow C sugar # 8 to 10	7 lbs.
2½ lbs.	Corn syrup	10 lbs.
½ lb.	Hard coconut butter	2 lbs.
2 small cans	Unsweetened evaporated milk	1 8-lb. can
	or	
1¼ lbs.	Commercial milk solids paste	5 lbs.
1 lb.	Liquor chocolate or Dutch Process Cocoa	4 lbs.

Small Batch	Ingredients (con't)	Large Batch
3 lbs.	Fondant (80% sugar, 20% corn syrup)	12 lbs.
1¼ lbs.	Egg frappe # 2	5 lbs.
3¾ lbs.	Desiccated medium or fancy shred coconut	15 lbs.
1¼ lbs.	Roasted filberts	5 lbs.
¾ lb.	Invert sugar	3 lbs.
¼ lb.	Fresh dairy butter	1 lb.
1 oz.	Gelatine	4 ozs.
¾ oz.	Salt	3 ozs.
½ oz.	Vanilla flavor	2 ozs.

PROCEDURE. While preparing the batch soak the gelatine in 4 times its weight in cold water. Weigh off all ingredients before starting to cook the batch.

Place 1 gallon of water for the large batch, or 1 quart water for the small batch, in cooking kettle. Dissolve the C sugar in the water by heating slowly. Add white sugar, corn syrup, hard coconut butter and milk to the batch. Cook to 242 degrees Fahr. Set off of fire. Add soaked gelatine and stir until gelatine is dissolved. Add chocolate or cocoa powder (sieve to remove lumps, fondant, frappe, invert sugar, dairy butter, salt and flavor. Stir batch until it is fairly stiff and shows evidence of a good grain. Add filberts and coconut. Pour onto oiled slab. When batch has set up, cut all the way through with a damp knife. Cut blocks to desired size. Place cut blocks into trays and let remain until firm. Pack in stock boxes or the pieces can be cut into 5c or 10c bars, wrapped in wax paper or moisture proof cellulose wrappers.

REMARKS. This old time confection had a wonderful sales record. It was particularly popular in the middle western and southern states. The piece can also be dipped in milk chocolate if so desired.

Formula # 109

PLUM PUDDING FUDGE
TWO LAYER COMBINATION

Bottom Layer

Small Batch	Ingredients	Large Batch
7 lbs.	Fine granulated sugar	28 lbs.
3 lbs.	Corn syrup	12 lbs.
6 ozs.	Cocoa butter or hard coconut butter 92°	1½ lbs.
½ oz.	Salt	2 ozs.
1 qt.	20% fresh cream or evaporated milk	1 gal.
2 small cans		1 8-lb. can
½ lb.	Invert sugar	2 lbs.
2½ lbs.	Fondant (80% sugar, 20% corn syrup. Cook 244-246 degrees)	10 lbs.
1½ lbs.	Egg frappe # 2	6 lbs.
1 lb.	Chopped figs	4 lbs.
1 lb.	Chopped pitted prunes	4 lbs.
½ oz.	Plum flavor	2 ozs.
2½ pts.	Water	5 qts.

PROCEDURE. Place sugar, corn syrup, cocoa butter, salt and water in cooking kettle. Bring to good stiff boil. Add milk or cream and cook batch to 246 degrees Fahr. The batch must be stirred as it boils. Pour cooked batch into cold kettle. Add invert sugar and fondant. Stir until fondant is mixed in the batch. Add flavor and frappe. Stir until the batch develops a creamy texture and add chopped fruits. Pour onto table that has been lined with oiled Kraft paper. Spread to ⅜ inch thickness. Allow spread fudge to set up fairly firm and add:

Top Layer

Small Batch	Ingredients	Large Batch
6 lbs.	Fine granulated sugar	24 lbs.
2½ lbs.	Corn syrup	10 lbs.
½ lb.	Cocoa butter or hard coconut butter 92°	2 lbs.
½ oz.	Salt	2 ozs.
½ lb.	Invert sugar	2 lbs.
5 lbs.	Fondant	20 lbs.
1½ lbs.	Egg Frappe # 2	6 lbs.
1 lb.	Desiccated medium shred coconut	4 lbs.
1 lb.	Chopped preserved cherries	4 lbs.
1 lb.	Chopped preserved pineapple	4 lbs.
½ oz.	Vanilla flavor	2 ozs.
1 qt.	Water	1 gal.

PROCEDURE. Place sugar, corn syrup, cocoa butter, salt and water in cooking kettle. Cook to 246 degrees Fahr. Pour cooked batch into cold kettle. Add invert sugar and fondant. Stir until fondant is mixed in the batch. Add flavor and frappe. Color the batch a pale yellow color to give it a creamy looking appearance. Stir until the batch develops a creamy texture and add coconut and fruits. Pour and spread over the top of the bottom layer. Let remain until firm but still retains some heat. Cut, to desired size, all the way through with wet knife. When batch has fully set up, cut into strips, turn strips over and remove paper. Break fudge apart and place in trays until cut surfaces are dry. Pack in stock boxes until ready to use.

REMARKS. This is also a good formula to use for a week-end special. The use of cocoa butter instead of coconut butter improves the flavor of the fudge. To insure smoothness of the product use a stabilizer. When using evaporated milk instead of cream avoid over beating of the fudge in the mixing kettle. Over beating will stiffen the batch. Fudge should flow freely when spreading.

This fudge and the fruit and nut fudge made with formula # 107 can be packed assorted for a week-end special.

Formula # 110

THREE LAYER BUTTERSCOTCH FUDGE

Top and Bottom Layers

Small Batch	Ingredients	Large Batch
7 lbs.	Fine granulated sugar	28 lbs.
4 lbs.	Corn syrup	16 lbs.
1 qt.	20% Fresh dairy cream	1 lb.
¼ lb.	Plastic vegetable butter	1 lb.
½ lb.	Fresh dairy butter	2 lbs.
2 lbs.	Fondant (80% sugar, 20% corn syrup. Cook 244 degrees)	8 lbs.
1½ lbs.	Egg frappe # 1 or # 2	6 lbs.
18 ozs.	Blanched roasted Spanish peanuts	4½ lbs.
1 oz.	Caramel flavor	4 ozs.
1¼ ozs.	Salt	5 ozs.
½ pt.	Water	1 qt.

PROCEDURE. Place sugar, corn syrup, vegetable butter, salt, cream and water in cooking kettle. Cook to about 240 degrees and add dairy butter. Cook to 245 degrees Fahr. Pour cooked batch into cold kettle. Add fondant. Mix and add frappe, flavors and a small amount of yellow color to give the fudge a creamy appearance. Mix and add nuts. Pour batch on two oiled paper lined tables or slabs. Spread out to about ¼ inch thickness. Let batch set up fairly firm before pouring center layer on top of it.

Center Layer

Small Batch	Ingredients	Large Batch
3 lbs.	Fine granulated sugar	12 lbs.
2½ lbs.	Corn syrup	10 lbs.
3 ozs.	Fresh dairy butter	¾ lb.
4 ozs.	Plastic vegetable butter 92°	1 lb.
4 ozs.	Invert sugar	1 lb.
3½ lbs.	Fondant	14 lbs.
1¼ lbs.	Frappe # 1 or # 2	5 lbs.
½ oz.	Caramel flavor	2 ozs.
1 dram	Butter flavor	½ oz. (4 drams)
1 lb.	Desiccated medium shred coconut	4 lbs.
½ oz.	Salt	2 ozs.
1 pt.	Water	2 qts.

PROCEDURE. Place sugar, corn syrup, dairy butter, vegetable butter and water in cooking kettle. Cook to 245 degrees Fahr. Pour cooked batch into cold kettle. Add invert sugar and fondant. Mix and add frappe, salt and flavors. Mix and add coconut. Pour and spread on top of bottom layers of fudge.

Top Layer

Same as first layer.

Let set until firm enough to cut. Cut all the way through with a wet knife. Next morning cut into strips and remove paper. Break pieces apart and let remain in trays until cut surfaces are dry. Pack in stock boxes.

REMARKS. This is another good fudge for week-end special. A plain three layer fudge can be obtained by omitting the nuts and coconut.

Color first layer pink and flavor with strawberry or raspberry flavor. Center layer white flavored with vanilla. Top layer chocolate.

For the large batch add 4 pounds of melted liquor chocolate to the batch after it has been cooked and re-cook to 245 degrees. Add 1 pound of liquor chocolate to the small batch. An improvement in flavor of the plain batches can be obtained if the vegetable butter is replaced with twice its weight in creamed coconut.

Formula # 111

OLD TIME VANILLA PECAN FUDGE

Small Batch	Ingredients	Large Batch
10 lbs.	Fine granulated sugar	60 lbs.
5 lbs.	Corn syrup	30 lbs.
1 lb.	25% fresh dairy cream	6 gals.
1¾ lbs.	Pecan pieces (see note)	10 lbs.
1 oz.	Vanilla flavor	6 ozs.
¾ oz.	Salt	4 ozs.

PROCEDURE. Place sugar, corn syrup and one-half of the cream in cooking kettle. Start cooking the batch and as it stiffens gradually add the remainder of the cream. Cook to 240 degrees Fahr. Pour batch into cold kettle. Let large batch remain in kettle for approximately 10 minutes. Let small batch remain in kettle for about 5 minutes. Start stirring the batch and rub paddle on sides of kettle while mixing with a circular motion. This rubbing of the paddle on the sides of the kettle will speed up the graining process. Continue stirring until batch is creamy and stiff enough to spread easily on the slab. When correct consistency is reached, add flavor, salt and nuts. Pour onto oiled paper lined slab or table. Let remain until batch is firm enough to cut across the fudge without breaking the set of the batch. Cut to full depth of fudge with wet knife. Cut paper and fudge into several strips. Turn fudge over and remove paper. With a butcher knife that has been dampened with a wet cloth, cut strips into individual pieces. Place in stock trays until cut surfaces are dry. Pack in stock boxes until ready to sell. Keep well covered to insure freshness.

REMARKS. This is a very fine fudge with a somewhat creamy and chewy texture. By pouring the batch at least 1¼ inch thick on the slab and cutting into strips about ¾ inch wide, then cutting the strips ¾ inch, a piece of fudge 1¼ inches long and ¾ inch square will be obtained when the cut pieces are laid on their side. By this method of cutting, more nuts show on the top surface of the fudge than would show if the fudge were poured ¾ inch deep and cut into 1¼ inch long pieces.

Note. The amount of pecans to use can be varied to suit your requirements.

Best results are obtained if this ***batch*** is ***cooked*** in a ***steam kettle.*** Whether cooked by gas fire or steam, the batch must be stirred all through the cooking process.

Formula # 112

OLD TIME CHOCOLATE WALNUT FUDGE

Small Batch	Ingredients	Large Batch
12 lbs.	Fine granulated sugar	60 lbs.
7 lbs.	Corn syrup	35 lbs.
1 gal. 1½ pts.	25% Fresh dairy cream	6 gals.
2 lbs.	English walnut pieces	10 lbs.
1¼ lbs.	Cocoa Powder	6 lbs.
3½ lbs.	Liquor chocolate	18 lbs.
1 oz.	Vanilla flavor	6 ozs.
¾ oz.	Salt	4 ozs.

PROCEDURE. Mix sugar and cocoa powder and place in cooking kettle. Add one-half of the cream. Mix and add corn syrup. Start cooking the batch and as it stiffens gradually add the remainder of the cream. Cook to 238 degrees Fahr. Add *melted* liquor chocolate and re-cook to 238 degrees. If cooked on gas fire, turn flame down low to prevent scorching of the chocolate. Pour batch into cold kettle. Let *large batch* remain in kettle for about 5 minutes. This is a companion piece to formula # 110. Follow procedure, outlined in that formula, as to stirring, spreading, etc.

REMARKS. Best results are obtained if these batches are cooked in a steam kettle. Whether cooked by gas fire or steam, the batch must be stirred all through the cooking process.

Formula # 113

VERY FINE NUT FUDGE
VANILLA AND CHOCOLATE

Small Batch	Vanilla Batch Ingredients	Large Batch
8 lbs.	Fine granulated sugar	32 lbs.
2½ lbs.	Corn syrup	10 lbs.
1 qt.	20% fresh dairy cream	1 gal.
2 small cans	Unsweetened Evaporated Milk (see note)	1 8-lb. can
12 ozs.	Invert sugar	3 lbs.
5 lbs.	Fondant (80% sugar, 20% corn syrup. Cook 244 degrees)	20 lbs.
2½ lbs.	Egg frappe # 2	10 lbs.
2 lbs.	Pecan pieces	8 lbs.
½ oz.	Salt	2 ozs.
1 oz.	Vanilla flavor	4 ozs.

PROCEDURE. Mix cream and evaporated milk. Use a milk stabilizer to prevent curdling of the evaporated milk. Place sugar and corn syrup in cooking kettle. Add milk and cream mixture. Cook to 243 degrees Fahr. (the cooking temperature may have to be raised two degrees for summer time). Pour cooked batch into cold kettle. Let *large batch* remain in kettle for 8 minutes. Let small batch remain for 4 minutes, then add the invert sugar, salt, flavor and fondant. Mix fondant into batch and add frappe. Stir until batch shows

a good creamy texture. Add nut meats. Pour onto oiled Kraft paper lined table, that has first been lined with plain Kraft paper. When batch is firm, mark with knife that has been dampened with a wet cloth or mark batch with wet circular cutting knives. Next morning cut into strips. Turn strips over and remove oiled paper. By first lining the table with plain paper and then the oiled paper, the batch is easily removed from the table. Cut into pieces large enough to fit stock boxes. Pack into stock boxes and break scored pieces apart as the fudge is sold.

Chocolate Batch

Same formula as vanilla but cook batch to 239 degrees and add 10 pounds of melted liquor chocolate to the *large batch* or 2½ pounds of liquor chocolate to the *small* batch. Recook to 239 degrees. If chocolate batch seems too dry add an additional 2 pounds of corn syrup to the next large batch that is made or ½ pound chocolate to the small batch.

REMARKS. This is one of the finest *slab* retail fudges that can be made. The fudge has a very smooth texture and the finest eating quality, if the cooked batch is cooled sufficiently before adding the fondant. Makes an excellent week-end special.

NOTE. The amount and kind of nuts to add to the batch can be varied to suit your requirements.

For the *larger shops* that are equipped with steam cooking kettles, an improvement in texture and flavor can be obtained by replacing the unsweetened evaporated milk with 10 pounds of sweetened whole condensed milk and cutting the sugar content to 30 pounds.

Stir batch at all times when cooking.

Formula # 114

BOX OR PAN FUDGE # 1
FOR SLICING

Small Batch	Ingredients	Large Batch
8 lbs.	Fine granulated sugar	32 lbs.
2½ lbs.	Corn syrup	10 lbs.
2 small cans	Unsweetened evaporated milk	1 8-lb. can
1 qt.	20% Fresh dairy cream	1 gal.
½ lb.	Invert sugar	2 lbs.
5 lbs.	Fondant (80% sugar, 20% corn syrup. Cook 242 degrees)	20 lbs.
2½ lbs.	Egg frappe # 2	10 lbs.
2 to 2½ lbs.	Nuts	8 to 10 lbs.
½ oz.	Salt	2 ozs.
	Flavor (see below)	

PROCEDURE. Mix cream and evaporated milk. Use a milk stabilizer to prevent curdling of the evaporated milk. Place sugar and corn syrup in cooking kettle. Add cream and milk mixture. Cook to 250 degrees Fahr. Pour cooked batch into cold kettle. Let *large batch* remain in kettle for 15 minutes. Let small batch remain in kettle for 6 to 7 minutes. Add invert sugar, salt and flavor and color to suit requirements. Add fondant and frappe. Stir until batch shows evidence of a good grain and fudge is stiff and does not flatten out when placed in pans. Add nuts and pour into baking pans that are about 8 inches x 8 inches x 2 inches deep. Grease pans with mineral oil or slab dressing. Level fudge in the pans and rough up the top surface of the fudge with a palette knife. Let fudge remain in pans overnight. Remove from pans and place in heavy wax paper lined stock boxes or the fudge can be sold from the pan.

REMARKS. The fudge produced with this formula has a smooth texture and fine eating quality. It is a little tougher than the fudges produced with the two following formulas but it has a longer shelf life. The fudge is usually made in assorted flavors.

Natural color. Add vanilla flavor and pecan pieces.

Maple. Add caramel color (burnt sugar), maple flavor and walnuts.

Green. Add pistachio flavor, light green color and blanched almonds.

Chocolate. Cook batch to 245 degrees. Add 10 pounds of melted liquor chocolate to the *large batch* or 2½ pounds liquor chocolate to the small batch. Let batch come to boil after chocolate is added. Add vanilla flavor and chopped brazil nuts.

For the *larger shops* that are equipped with *steam cooking kettles,* an improvement in texture and flavor can be obtained by replacing the unsweetened evaporated milk with 10 pounds of sweetened whole condensed milk. Deduct 2 pounds from the amount of sugar that is called for in the batch.

Batches must be stirred at all times when cooking.

Formula # 115

BOX OR PAN FUDGE # 2
FOR SLICING
Vanilla

Small Batch	Ingredients	Large Batch
	Part 1 Fondant	
12 lbs.	Fine sugar	48 lbs.
1 lb.	Corn syrup	4 lbs.
½ gal.	30% fresh dairy cream	2 gals.
4 ozs.	Fresh butter	1 lb.
¼ oz.	Salt	1 oz.
1 qt.	Water	1 gal.
	Part 2 Bob	
4 lbs.	Sugar	16 lbs.
	Part 3	
1 lb.	Invert sugar	4 lbs.
2 lbs.	Pecan pieces	8 lbs.
1 oz.	Vanilla flavor	4 ozs.

PROCEDURE. Part 1. Place sugar, corn syrup, fresh cream, dairy butter, salt and water in cooking kettle. Batch must be stirred all through the cooking process. Cook to 240 degrees Fahr. Pour *small batch* on cream slab or *large batch* on plow type cream beater, that has been lightly sprinkled with water. Sprinkle top of batch with a small amount of water. Let remain until batch is cold. Cream up the batch and place it in a remelt kettle. *Slowly* remelt to 130 degrees and add Part 2 (Bob) that has been cooked to 238 degrees. Mix well

and heat to 145 degrees. Add Part 3, adding the nuts first, then the flavor and invert sugar. Mix well and pour into oiled pans or pour onto wooden table that has first been lined with Kraft paper and then lined with *heavy* wax paper. Pour batch to the depth of 1¼ inches. Roughen top of batch with palette knife. If batch is too soft to hold a rough surface, let remain in pans or on table until it has set up enough to retain a rough surface. Next morning cut into blocks large enough to fit into stock boxes. Remove paper and place into stock boxes that have been lined with wax paper. The fudge that was poured in pans, can be removed from pans and the box fudge taken from stock boxes and cut to desired size as it is sold.

REMARKS. This fudge has a more tender texture than the fudge made with the previous formula as it contains very little corn syrup. The fudge can be made in any flavor but is usually made vanilla, maple and chocolate. It can also be cut into smaller blocks and chocolate coated or wrapped with *waxed glassine* paper.

Maple

Use same formula as vanilla fudge but color a little deeper shade with caramel color (burnt sugar). For the *large batch* the vanilla flavor can be reduced to 1 ounce and 2 ounces of good maple flavor added to the batch. *Small batch* use ¼ ounce vanilla and ½ ounce of maple flavor.

English walnut pieces can be used instead of pecan pieces in the maple batches.

Chocolate

Same formula as vanilla fudge, but reduce cook of bob to 232 degrees.

For the *large batch*. Part 3, use 8 pounds invert sugar, 4 ounces vanilla flavor and add 14 pounds of melted liquor chocolate to the batch *after* it is remelted to 145 degrees. For the *small batch*, Part 3, use 2 pounds invert sugar, 1 ounce vanilla flavor and 3¼ pounds melted liquor chocolate.

Formula # 116

BOX OR PAN FUDGE # 3

Best for Slicing, Center for Pecan Rolls and Nut Fudge Balls

Vanilla

Small Batch	Ingredients	Large Batch
12 lbs.	White sugar	48 lbs.
4 lbs.	Brown sugar # 12	16 lbs.
4 lbs.	Corn syrup	16 lbs.
1 gal.	24% fresh dairy cream (see note)	4 gals.
1 oz.	Salt	4 ozs.
2 lbs.	Pure sugar Bon Bon Cream	8 lbs.
6 ozs.	Invert sugar	1½ lbs.
2½ lbs.	Pecan pieces	10 lbs.
1 oz.	Vanilla flavor	4 ozs.

PROCEDURE. Place ½ of the fresh cream in cooking kettle. Add brown sugar and soak until lumps have softened, add white sugar, corn syrup and salt. Cook until batch thickens, add the remainder of the fresh cream. Cook to 244-245 degrees Fahr. Pour *small batch* on cream slab or *large batch* on plow type cream beater, that has been lightly sprinkled with water. Sprinkle top of batch lightly with water. Cool to about 130 degrees. Break bon bon cream into several pieces and scatter it over the batch. Cream up the batch and allow it to sweat back. When batch has sweat back, place in remelt kettle. Remelt to paste form or until it will fall off of the paddle, with a heavy body. Add vanilla flavor and invert sugar. Mix and add nuts. Pour into oiled pans or pour onto wooden table that has first been lined with Kraft paper and then lined with heavy wax paper. Pour batch to the depth of 1¼ inches. Roughen top of batch with palette knife. Next morning cut into blocks large enough to fit into stock boxes. Remove paper and place into stock boxes that have been lined with wax paper. The fudge that was poured into pans, can be removed from pans and the box fudge taken from stock boxes and cut to desired size as it is sold.

REMARKS. This is about the most popular Board Walk type fudge made by the retailer. It is usually made in vanilla, maple and chocolate flavor.

NOTE. For the large batch you can use 3 gallons of cream and ⅛ pound can of evaporated milk. For the small batch use 3 quarts cream and 2 small cans of evaporated milk, if so desired.

This is a good *fudge center* to use *for pecan rolls*. The fudge can be cut into strips and rolled into nut pieces or the surface of the cut pieces can be allowed to dry and then the strips dipped in caramel and rolled in pecans.

This fudge can also be used as a center for *nut coated fudge balls*. Omit the nuts in the batch. Knead small portions of the fudge until the set of the batch is broken. Hand roll into balls and then roll into nut meats.

Maple

Use same formula as vanilla fudge but color a little deeper shade with caramel color (burnt sugar). For the *large batch*, use 1 ounce vanilla flavor and 2 ounces good grade maple flavor. For the *small batch*, use ¼ ounce vanilla flavor and ½ ounce maple flavor.

Use vanilla fudge formula but for the *large batch* use 4¾ pounds invert sugar and add 12 pounds of melted liquor to the batch when it is remelted. For the *small batch* use 1¼ pounds invert sugar and 3 pounds of melted chocolate.

Formula # 117

MAPLE PECAN CROQUETTES COATED OR HALF DIPPED

Small Batch	Ingredients	Large Batch
5 lbs.	White sugar	20 lbs.
3 lbs.	Maple sugar (see note 2)	12 lbs.
3½ lbs.	Corn syrup	14 lbs.
½ gal.	20% fresh dairy cream	2 gals.
½ lb.	Hard vegetable butter 92	2 lbs.
4 ozs.	Fresh dairy butter	1 lb.
7 lbs.	Fondant (80% sugar, 20% corn syrup. Cook 244 degrees)	28 lbs.
10 ozs.	Invert sugar	2½ lbs.
2 lbs.	Pecan pieces (see note 1)	8 lbs.
½ oz.	Salt	2 ozs.
1 pt.	Water	2 qts.

PROCEDURE. Place maple sugar and water in cooking kettle. Dissolve sugar by heating slowly. Add white sugar, corn syrup, butter and ½ of the cream. Cook until batch thickens and add the remainder of the cream. Cook to 238 degrees Fahr. When batch has stopped boiling, add invert sugar, salt and fondant. Mix well.

Chocolate Coated Croquettes

For chocolate covered batch, add nuts to batch and pour onto well oiled slab, using ½ inch or ⅝ inch slab bars. Spread batch and when batch has set up and cooled, cut into strips. Break the grain of the batch by rolling with rolling pin or passing them through caramel sizing rolls. Cut out round croquettes. With a tin hand cutter that is tapered from a 1 inch opening at the cutting edge (bottom) to about 1⅛ inches opening at the top. When all of the strips are stamped out, re-roll scrap pieces to correct height and cut out croquettes. Continue re-rolling and cutting until no more scrap

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pieces are left. Hand dip or machine coat croquettes in a good grade of milk or dark sweet vanilla chocolate.

Half Dipped Croquettes

Do not mix nuts in batch but handle same as first formula. Pour the batch about 2 or more inches deep on the oiled slab. When batch has set up but still *retains some heat*, cut off strips of candy and knead it to break the grain. Place kneaded candy between slab bars (⅝ inch high). With a rolling pin, roll candy down to height of bars. Moisten top surface of the piece with a mixture of 2 parts sugar dissolved in 1 part water. Let set for a minute until some of the syrup has softened the top surface of the candy. Cover top surface of candy with chopped pecans. With the rolling pin, roll nuts until they sink into the candy. Do not put too much pressure on the nuts or they will crush. Take strip with imbedded nuts and as with chocolate covered croquettes, cut out round croquettes. The scrap that remains when circles are cut out can be mixed with the remainder of the batch when it is being kneaded. When all of the croquettes are stamped out, half dip them in dark sweet vanilla chocolate.

Another attractive piece can be made by using chopped blanched almonds that have been colored green instead of pecans.

REMARKS. Either the fully chocolate coated croquette or the half dipped croquette have a very pleasing flavor. The half dipped croquette can be used to "dress up" a box of assorted chocolates.

For a croquette where less hand labor is involved, either piece can be rolled to desired thickness and cut with a knife into squares or blocks and then dipped as specified.

NOTE 1. When nuts are mixed in the batch the amount specified in the formula can be used. When nuts are spread on top of the batch add enough nuts to fully cover the top surface of the candy.

NOTE 2. For a cheaper piece the maple sugar can be replaced with yellof C sugar # 10 and 2 ounces of good maple flavor added to the *large batch* or ½ ounce maple flavor added to the *small batch*.

Formula # 118

CHOCOLATE COVERED FUDGE # 1 and NUT ROLLED FUDGE BALLS

Small Batch	Ingredients	Large Batch
5 lbs.	Dark sweet chocolate	20 lbs.
5 lbs.	Milk chocolate	20 lbs.
1 lb.	Hard Coconut butter 96°	4 lbs.
2½ lbs.	sweetened condensed milk	10 lbs.
4 lbs.	Fondant (80% sugar, 20% corn syrup. Cook 244 degrees)	16 lbs.
4 lbs.	Egg frappe # 2	16 lbs.
1½ lbs.	Nut meats	6 lbs.
1 oz.	Salt	4 ozs.
1 oz.	Vanilla flavor	4 ozs.

PROCEDURE. The *large batch* can be mixed in a Hobart type mixer. The small batch can be mixed in kettle, if no mixer is available.

Melt the dark chocolate, milk chocolate and hard butter to 110 degrees. Pour into mixing kettle and add the condensed milk, egg frappe and fondant, which should be remelted to about 120-130 degrees. Start mixing the batch and add salt and flavor. Mix until batch becomes smooth and creamy. Fats may separate at early stages of mixing, but all ingredients will blend together after being mixed for a while. Add nut meats.

Chocolate Covered

Pour batch on oiled paper lined table that is in a room with a temperature not above 70 degrees. Spread to desired thickness. Let remain until batch has set up. Cut to desired size with butcher knife or the fudge can be cut all the way through with a *warm damp* roller knife. The blades of the roller knife can be warmed over a gas flame (do not overheat). Cut marked fudge into strips. Turn strips over and remove paper. Break apart and hand dip or machine coat in a good grade of milk or dark sweet vanilla chocolate. *—the end*

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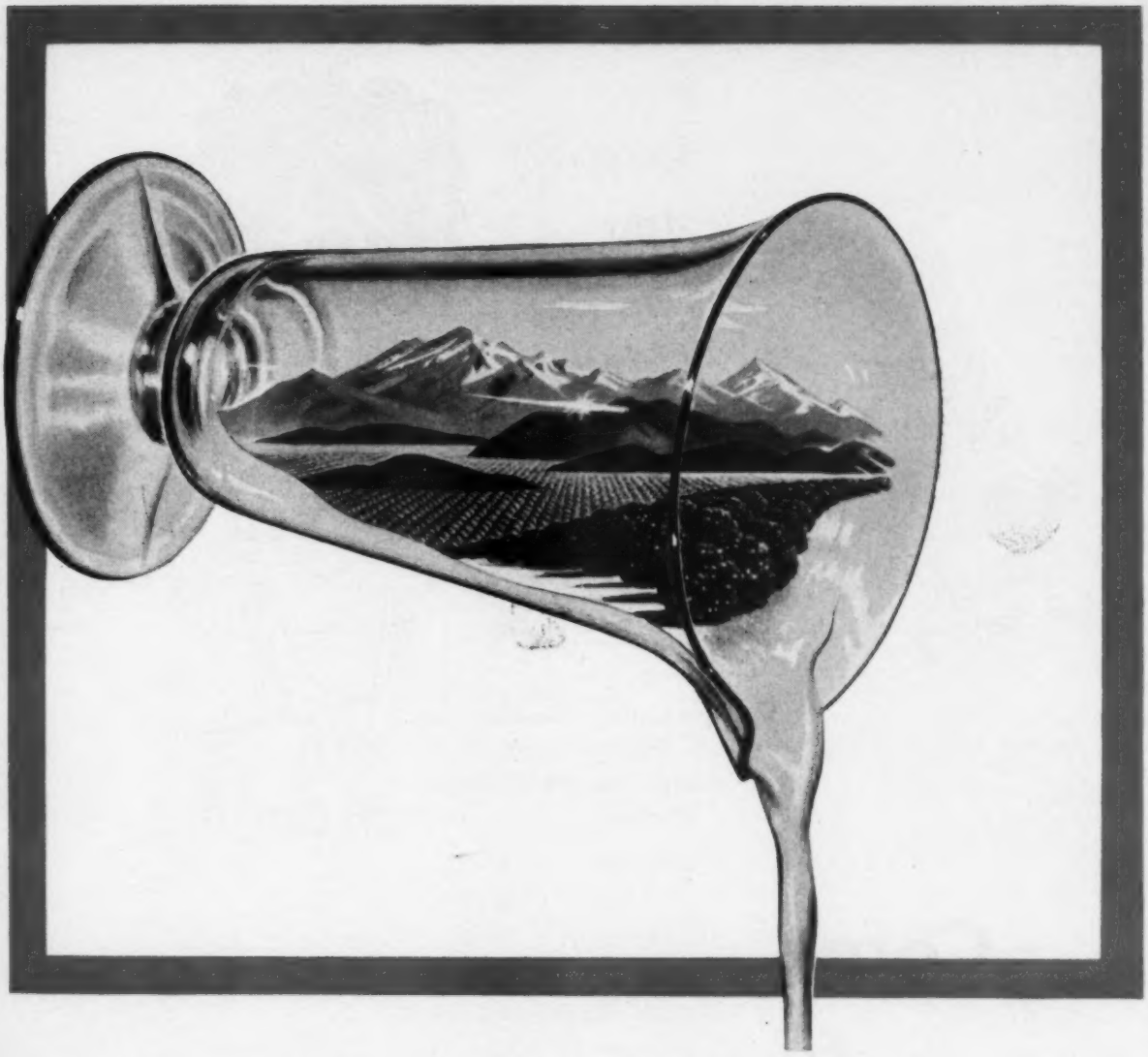

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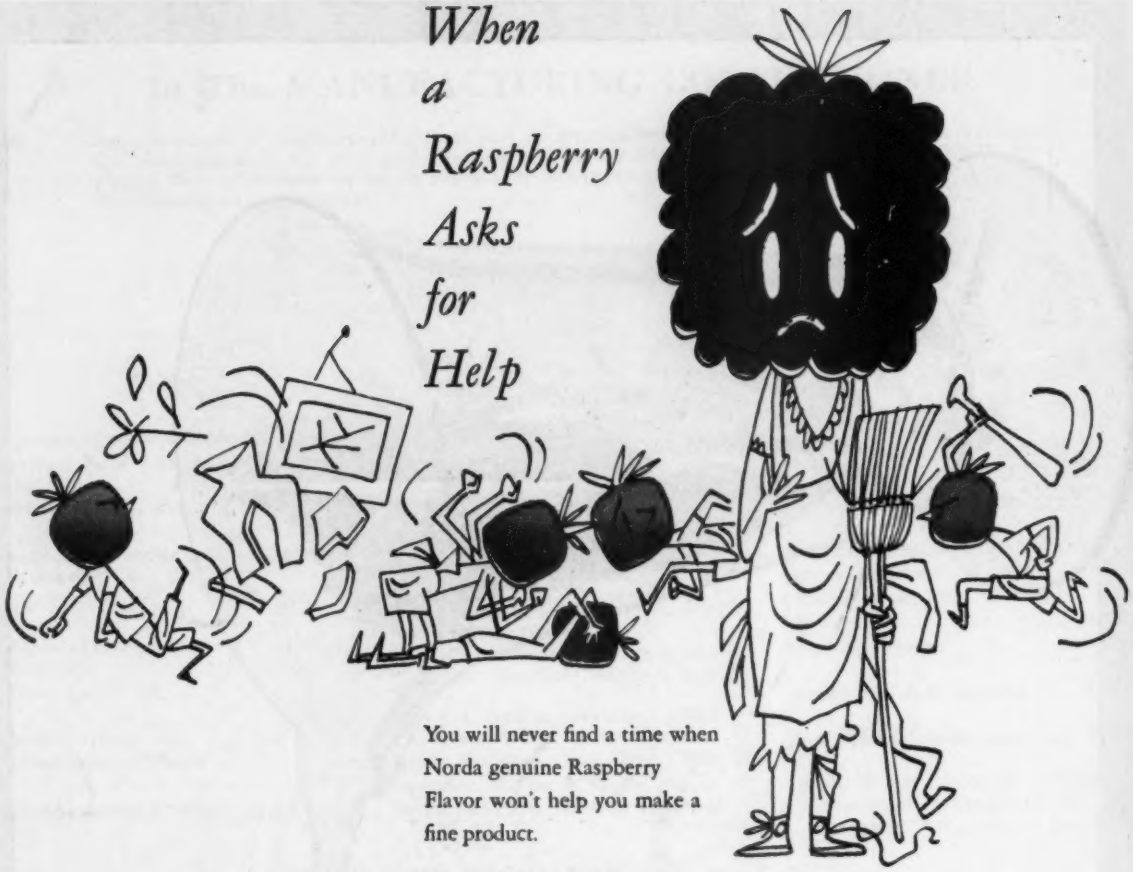

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